

APRIL
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Micro
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IBM gets serious

IBM announced the release of a new version of the IBM-PC in a worldwide release on the eve of the 1st Australian Personal Computer Show held in Sydney last month. The new machine, called the IBM Personal Computer XT, is an enhanced IBM-PC featuring an integral 10M-byte hard disk, 132K RAM, eight expansion slots and built-in Asynchronous Communications Adapter.

The XT has been aggressively priced at \$A7892 and will give IBM an opportunity to reclaim some of the market for PC peripherals from third party companies which are offering a staggering array of add-on cards.

Memory cards, hard disk drives and communications cards provide the bulk of this market and third party manufacturers may suffer because of the release of the XT. A PC cannot be expanded to XT without using an XT expansion unit. IBM's ability to support its products, often touted as an important part of the IBM-PC's success, should encourage users to overcome their reluctance to use hard disk drives and establish hard disk drives as an integral part of a modern microcomputer system. The XT is being released with IBM PC-DOS 2.0 which provides for better control over the expanded environment and provides a migration path to Microsoft's Xenix implementation of Unix. IBM Australia has taken the release of the XT and the devaluation of the Australian dollar to revise its PC pricing. Hardware prices have been reduced or maintained while software prices have been increased by 12 per cent. The release of the XT indicates that IBM has decided to start responding to market forces. The PC has been most successful with the IBM user base and as a professional computer, not as a home or small business computer. IBM has not been successful at marketing or developing software for the PC. The much discussed scheme for IBM em-

ployees to write software for the PC has not been successful and IBM has relied on the microcomputers software industry to develop software for the PC. More importantly, the XT can be seen as providing the minimum hardware environment required for the new generation of operating and applications software that will be released this year. IBM

is providing the essential stability of a mass market machine for the introduction of this software from Digital Research, Microsoft, VisiCorp, MicroPro, Lotus and Context. IBM's interest in the encourage-

ment of Concurrent CP/M, Xenix, VisiON, Starburst and the spreadsheets Lotus 123 and Context MBA as the main

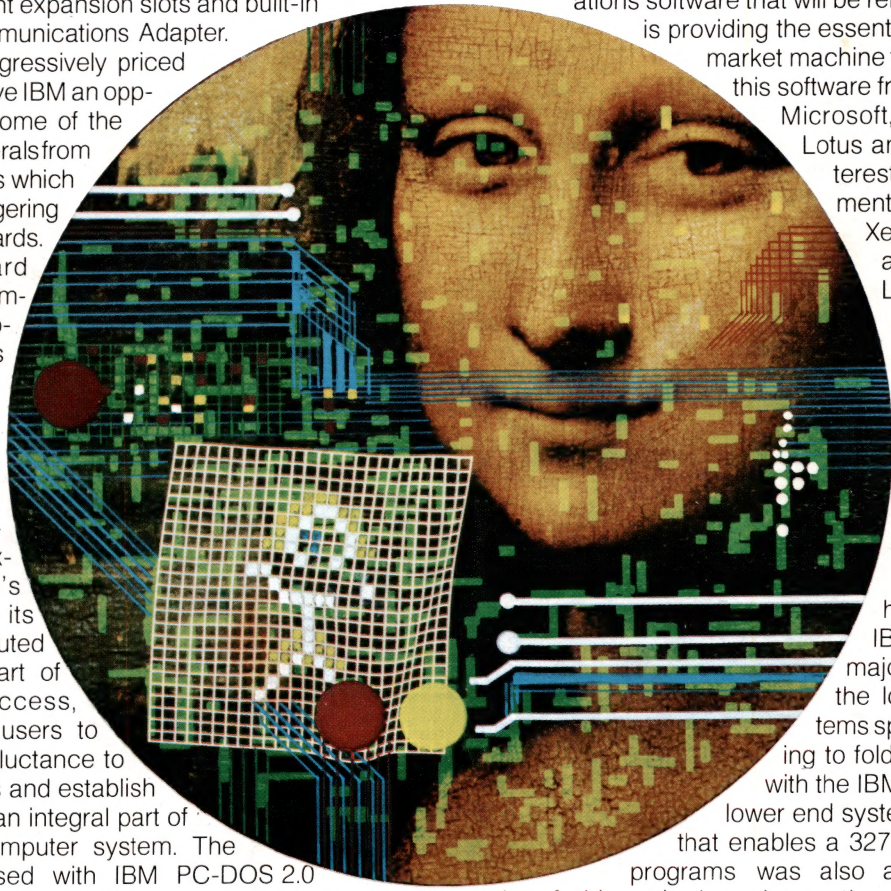
software products for the PC family indicates strong support for these developments as the future direction of professional microcomputing. US industry analysts have suggested that IBM is commencing a

major reorganisation of the lower end of its systems spectrum. IBM is starting to fold back its experience with the IBM-PC into its range of lower end systems. An attachment

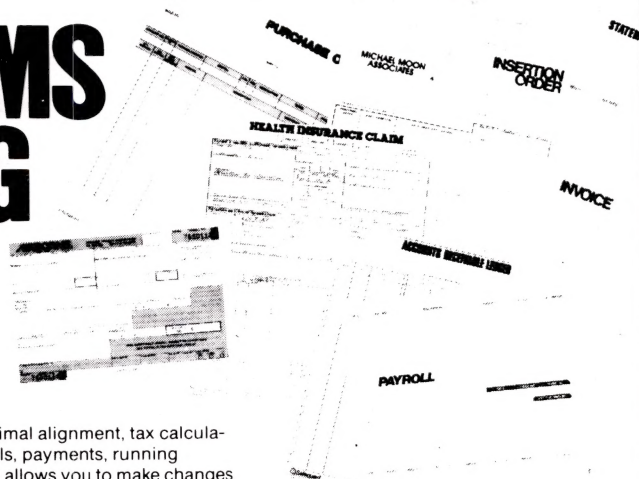
that enables a 3278 terminal to run PC programs was also announced. Propon-

ents of this attitude point to the XT's asynchronous communications adapter and SDLC adapter which permit communications with IBM mainframes. "The Personal Computer line appears to be attaining a dominant position in their thinking vis-a-vis the 3270 line," asserted Kenneth Bosomworth, president of International Resources Development Inc. "The microcomputer line is now becoming a central element of IBM's whole network architecture strategy," he said. The release of the XT has not stopped intense speculation about the extension of the PC family in other directions.

— Ian Webster



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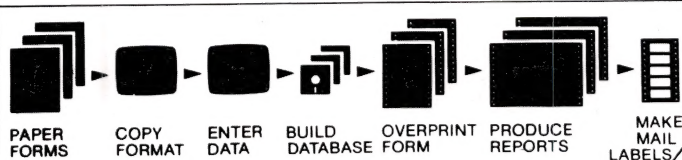
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03	001	0210	DISK II	590.00	590.00	
04	001	0030	16K RAM	90.00	90.00	
05	001	0080	12 IN MON	225.00	225.00	
06	015	0025	MINI FLOP	5.00	75.00	
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PRODUCT SPOTLIGHT

An exploration of microcomputer DBMS

We review the Commodore 64

Profile of the Dewhirst Corp

The Dbase II industry

Spectrum GT has 30M-byte hard disk

AUSTRALIAN computer manufacturer D.D. Webster Electronics Pty Ltd has launched two PDP11-compatible desktop minicomputers.

Webster said the computers introduced 1/4 in. cartridge tape in a rapid back-up mode of 5M-bytes/min.

The first, Spectrum Eleven Model GT, had an 8-in Winchester disk storing 30M-bytes which could be fully backed-up in 5.9 minutes by the single removable cartridge, according to managing director, David Webster.

He said this machine would be aimed at customers requiring extremely rapid back-up or restore mode. The tape could also be used in TM11 fashion file-oriented operations.

"Copying only requires a single operational action, making this product a more attractive proposition than floppies to small or medium-sized businesses with accounting systems requiring daily back-up," Webster said from his Bayswater, Victoria, headquarters.

The Spectrum was available from \$A19,500 with a memory range of 64K-byte to 1M-byte. It was capable of accommodating from two to 18 terminals, with reasonably simultaneous access for up to 10 users.

Webster said the most powerful version, the SS33GT6 which had a speed enhanced central processor and 1M-byte of memory, sells for \$A27,000.

Designed to slide into the front of all compact desktop GT versions, the 450ft 1/4 in. ANSI standard tape cartridge recorded 9 track mode, and yielded a capacity of 45M-byte, Webster said.

A four to five run length limited recording code was used for reliable NRZI encoding, and to enable GAP, SYNC and FILEMARK codes for Digital Equipment Corporation (DEC) software compatibility.

Webster said the smaller version — the Spectrum Model HR — had been simultaneously introduced.

The Model HR featured identical desktop dimensions to the GT, but stored 8.5M-byte on its fixed 8-in Winchester disc. This was backed-up in 90 seconds by an ANSI 1/4 in. 20M-byte 4 track streaming cartridge tape.

Further information: D.D. Webster Electronics Pty Ltd, 17 Malvern St, Bayswater, Vic 3153. Tel: (03) 729 8444.



The Spectrum Eleven Model GT from DD Webster Electronics Pty Ltd has 30M-bytes of Winchester disk storage.

Apple sales rise 60pc

CUPERTINO, Calif — Apple Computers reported a 60 per cent increase in sales and 73 per cent rise in net income for the quarter ended December 31 compared with a year ago.

Worldwide sales grew to a record \$US214.3 million from \$US133.6 million a year ago. Net income set a quarterly high of \$US23.5 million, or 50¢ a share, up from \$US13.6 million or 24¢ a share.

Compared with the preceding quarter, sales and net income rose by 22 per cent and 26 per cent respectively.

Apple chief executive, A.C. Markkula, Jr. said: "We are pleased with Apple's performance in this period, particularly in light of economic conditions around the world. Our domestic and foreign sales were both strong, reflecting continued high demand for the Apple II personal computer and increased volume for the Apple III, as well as peripheral products and software."

Markkula said December sales reached a one-month record of \$US88.3 million, making Apple the first company to reach the billion-dollar sales rate in personal computer products in a year.

He added that the company's expanded product line — which include two new Apple-branded printers in addition to the profile 5M-byte mass storage device — all contributed to first quarter sales.

Research and development expenses totalled \$US14.3 million in the first fiscal quarter, 81 per cent above a year ago and an increase of \$US2.9 million over the highest previous quarter.

Markkula said research and development expenses, as a percentage of sales, would be slightly lower in the fiscal second half due to new product introductions.

"Personal computer buyers are no longer interested in 'hot hardware' as such, but complete solutions to problems," Markkula said.

"This trend continues to favor Apple because of the extensive range of Apple-compatible applications software and peripherals available."

Digital Research's 16-bit strategy

DIGITAL Research has continued its drive to penetrate the emerging 16-bit system software market.

The campaign has included widespread advertising in the computer press, price reductions and new product announcements the CP/M '83 show in San Francisco.

Digital claims it has been prompted by the success of Microsoft's MSDOS and the need for a strong presence in the IBM-PC market to support the release of Concurrent CP/M-86 later this year.

New versions of DRI's programming languages, CBasic, Pascal/MT+, CIS Cobol and PL/1 have been announced for the CP/M-86 operating system.

The first results of the Digital Research portable strategy have been announced with the release of CP/M 68K for the 68000 microprocessor and Z8000 CP/M. The CP/M 68K release will CP/M a C compiler compatible with Unix Version 7.

An 8086 implementation of the C compiler will be released later this year. □

This advertisement may as well be selling bananas and ice cream.

Now the last place you'd expect to see an expensive colour advertisement for bananas and ice cream is in a magazine for micro computers.

Not that the idea is not appealing, it is just that bananas and ice cream is not a micro computer. Or even looks like one. Which is a bit like Wicat.

Because, while Wicat looks slightly like a micro computer (it fits nicely on a desk), there the resemblance stops.

Wicat can do almost anything a Mainframe can do. It can address 16 megabytes of memory and has a 32-bit processor which operates at speeds around 1 MIP.

Peripheral disks range from a 1mb to a 474mb, it programmes in 8 languages with Unix also available.

Everything is fully compatible, from a single user system to a large, time shared 32 terminal system. You can use it as a stand alone job, or part of an existing Mainframe setup.

Now that's hardly a "Micro Computer" is it?

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You'll be astonished.



SQ306 most popular disk unit

By John Markoff

ONE of the most popular disks in both portable and slim-line desktop computers appears to be SyQuest's SQ306 3.9 in. Winchester drive, which has 5M-bytes of storage and a removable cartridge. As many as 40 manufacturers are integrating the drive into their systems.

First unveiled at the National Computer Conference in Houston and billed as a "low-cost" Winchester, the SyQuest drive was introduced as an add-in for the IBM PC and other computers from a number of manufacturers.

Tecmar, an IBM peripheral manufacturer based in Cleveland, is offering the SyQuest in an internal configuration that uses the existing IBM Personal Computer power supply.

The Tecmar system permits disk sharing for up to four IBM PCs.

Davong Systems of Mountain View, California, is offering the SyQuest drive as a backup system for its external hard disk.

Jonos, a San Diego portable-computer manufacturer, is also offering a version with the SyQuest drive, and another manufacturer plans to announce it as an add-in for the Osborne computer.

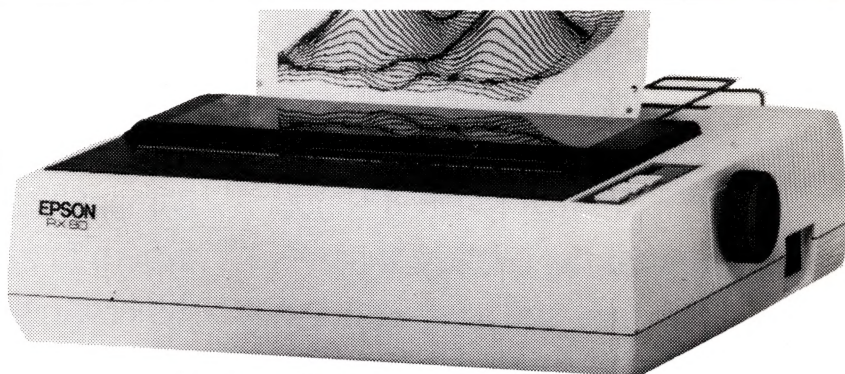
Larry Sarisky, SyQuest vice-president of marketing, said that the key technology in the new drive was a plated medium, called ChromaFlux.

Sarisky said that because the new plating technique was significantly harder than conventional media coatings, the new disk was virtually immune from head crashes. He called the bit density and other design aspects of the new drive "conservative".

The drive is currently a scarce commodity, according to several manufacturers who are integrating it into their systems.

Sarisky said that SyQuest is now producing 25 drive units a day and plans to expand production to 2300 a month.

• John Markoff is a senior editor with Infoworld.



The Epson RX-80 demonstrating a graphics output

Epson line for micro users

WARBURTON Franki is offering the RX-80 and FX-80 microcomputer printers made by Epson.

The RX-80 will retail at \$A765. It operates at 100 char/sec and supports all MX-80 control codes, including italics and elite font, according to Warburton Franki.

The FX-80, which is intended for word processing applications, retails at \$A1,155.

It offered standard friction and sprocket paper feed, single-sheet feed, paper tear bar, down-load character font, proportional spacing, up to 5K-bytes of data buffering, and runs at 160 char/sec, Warburton Franki said.

Further information: Warburton Franki Ltd, 372 Eastern Valley Way, Chatswood, NSW 2067. Tel: (02) 407 3261.

80 speakers for 10ACC sessions

SYDNEY — The program for the 10th Australian Computer Conference is being finalised with more than 80 DP specialists expected to speak at 72 sessions.

Among the overseas speakers at the four day conference will be Tom Stonier whose keynote speech was one of the highlights of last year's meeting in Hobart.

The people responsible for two Australian-designed advanced micros — Unison's Bill Hollier and Labtam's Heimo Eberhardt — are expected to continue the theme of the Hobart conference... native technology.

The 10ACC conference and exhibition will be held in Melbourne in the last week of September.

Eight technology update seminars and six workshops are planned for the conference on such subjects as computers in manufacturing, computers and medicine, office automation, micro model-ing, computers and society, and careers and education.

First national PC conference

MELBOURNE will host the first national conference on personal computers as part of the 11th CETIA business and personal computer exhibition and convention to be held from May 31 to June 3.

The title of the conference will be Personal Computing: Why, When, Where and How.

It will be run by Technisearch in association with the Royal Melbourne Institute of Technology (RMIT) and the Small Business Development Corporation (SBDC).

Professor Brian J. Garner, the Australian Computer Users Association chairman and professor of computing at Deakin University, will be the keynote speaker. *Australian Microcomputer* contributing editor Tony Adams is also a featured speaker.

At least 12,000 established small businesses are being invited by SBDC to attend CETIA'83.

Computers in education and training is the other CETIA seminar dealing with the Personal Computer.

Unix System V sets future product rules

SAN DIEGO, Calif. — AT&T, in its introduction of Unix System V, has adopted a standard around which all future products will be offered.

That move, as well as other announcements, gave commercial Unix vendors confidence in the future of the product and a base around which to build badly needed applications software, the vendors said. For the first time, AT&T has declared it is in the software market and is dedicated to furthering Unix as a product, vendors said.

Adopting a standard was imperative if a "large applications base" was to be encouraged, said AT&T's Bob Guffey, manager of patent licensing.

"There is a real need for us to take the benefit of what is being done in the commercial community outside the Bell System, and there is a dramatic need for additional applications software" he said.

The other parts of the Unix System V announcement include a more liberal

licensing policy for distribution, free demonstration systems for retail sellers of Unix or Unix-based applications, and a program of support offered through Western Electric. The company also plans to unbundle Unix from its utilities and software tools, making it more attractive to some commercial vendors.

Educational licensing policies were introduced to increase the use of Unix in university settings. The move is intended to spawn a new generation of programmers and engineers devoted to the system.

Most commercial vendors believe the announcements will spur development of a solid application base during the next year.

AT&T was able to commit to a standard version of Unix because its development of the product has reached a point of stability and maturity. "The kernel is locked, and I can't emphasise that too strongly," Guffey said.

"I'm cautiously ecstatic," said Mark Ursino, Xenix product manager at Microsoft Corp. "What's really important are

the new distribution provisions. If what they said is really in the contract, it will represent a 180-degree turnaround in their approach to the market because the economics have been scary."

By December, more than 190,000 computers will be running Unix, said Jean Yates, president of Yates Ventures, a company specialising in Unix-related consulting and market research.

Yates also predicted that by 1986, the number of separate Unix licences would rise to 1.4 million. That would rank Unix third in operating system popularity, following leader MS-DOS with 4.5 million copies, and both 8- and 16-bit CP/M, with a total of 4.3 million copies, not including CP/M versions on silicon.

Yates, however, feels confident of her figures. She "definitely sees single-user Unix on the (IBM) PC" and states it would likely be a version of Xenix, Microsoft Corp's licensed Unix operating system.

She also expects 70 per cent of all microcomputers to use at least two operating systems by 1986, giving Unix a good boost.

KAYPRO II The New Revolution

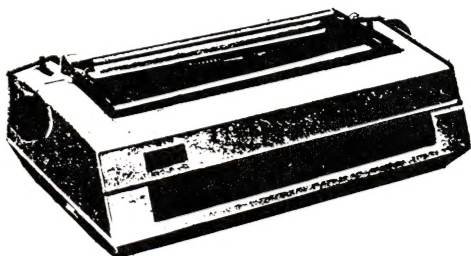
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Standalone training developer

CONTROL Data Australia has announced a standalone computer-based education product aimed at the business and industry marketplace.

Unlike Control Data's Plato computer-based education systems, its "Standalone Author and Delivery System" did not need a large computer, the company said.

"It provides solutions to the international training needs for standalone authoring, cost-efficient 'programmerless' authoring, and the need for multi-lingual courseware creation and delivery," said Charles A Copenhagen, managing director of Control Data Australia Pty Ltd.

Courses were created on a standalone station consisting of a Control Data Viking terminal, dual flexible disk drives and special software.

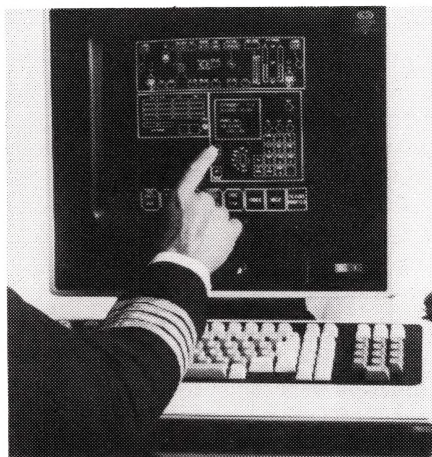
"With this new capability, Plato makes it easy to create custom courseware for a variety of training tasks," Copenhagen said. "If users can write a training course, they can write a computer-based training course in the local language."

The system was independent of a mainframe computer, but could be connected for use as a multipurpose time-sharing terminal.

The author station consists of a Control Data Viking terminal (other Control Data terminals are compatible), dual flexible disk drives (one contains the courseware creation software, the other contains the disk on which the lesson is recorded), a variety of Plato authoring application models and their licences, a printer (optional), and other peripherals.

The student station consists of a Control Data Viking display terminal with a single flexible disk drive. In some cases, existing Plato terminals could be used, which would reduce the initial equipment investment.

The student station featured a high-resolution, touch-sensitive screen, graphic capability, adjustable screen angle and easy-to-understand keyboard, Copenhagen said.



Ansett Airlines of Australia is using the Plato standalone author and delivery system to help train its Boeing pilots.

A variety of lessons could be created on the system and different types could be combined on a single disk. Examples of typical author application models included tutorial lessons, drill and practice and situation simulation.

All lesson models could incorporate graphics to increase interest and clarify difficult points.

Training Ansett pilots to fly 737s and 767s, and developing the numeracy and literacy skills of educationally disadvantaged young people were some of the educational roles the Plato standalone could fulfill.

Ansett manager of technical training, David Finley, said the Plato standalone system gave pilots hands-on experience at low cost.

He said it reduced the number of hours in a flight simulator where training costs were high.

Trainee pilots averaged almost two hours on the computer for each subject each year.

In the inner Melbourne suburb of Prahran, the system is being used in Task Force, an education unit directed by Mr Bill Manallack.

Task Force will soon branch into a multi-service youth project in Glenroy in the northern suburbs using four Plato standalone terminals.

Early school-leavers with literacy and numeracy problems and under-achievers would receive remedial teaching, Manallack said.

The Glenroy centre would ultimately cater for about 1000 young people a week and several hundred of these would probably use the computers.

"Many of them have been disadvantaged by the school system and the computers will give them the latest technology to help catch up," Manallack said.

"We will be doing reading and maths and basic remedial education later including computer programming and business application.

"We hope the Plato standalone system will assist these young people to get into retraining programs at technical colleges and universities."

Alfaskop scores with operators

THE Ericsson Information System microprocessor based Alfaskop 41 is proving popular with data terminal operators.

Alfaskop products are an IBM 3270 and Univac compatible range of terminal systems offering dual host processing. The product range includes monochrome and color screens, and a number of letter quality and line printers.

Alfaskop's software packages allows flexibility and independent processing as well as local and remote attachment to the mainframe.

Developed in Sweden, Alfaskop's features include soft-brown screen with an easy-on-the-eye, amber display in a high-contrast combination.

The keyboard is separate from the terminal and adjustable for height and angle. The numerical key-pad can be attached either side of the alphanumeric pad, or kept apart.

A retractable hood reduces glare and reflections where light conditions distract the operator.

The terminal is adjustable through the horizontal and vertical planes.

Alfaskop marketing manager, Elmer Meyer, said the design cut down absenteeism and improved performance.

"We call it convenience, performance, health and dollars," he said.

Further information: Alfaskop, Cnr Blair & Riggall Street, Broadmeadow, Vic. Tel: (03) 480 4888.

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- Disk emulations.
- Terminal emulations.
- Rugged construction.

Just released in Australia by InSystems, Zorba is set to be one of the top selling portables. Z80, CP/M based, Zorba has read/write and

format compatibility with Xerox 820 (SD, DD) KAYCOMP (DD), DEC VT-180 (SD) and IBM PC (CP/M86).

The start up package for only \$2995 (plus tax) includes CP/M 2.2 OS, M80 (inc. L80, LIB80, CREF80). Source code of BIOS and utilities, Data Comm. set-up package, Modem Comm. package, C Basic, WordStar, MailMerge, and CalcStar.

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Communicating micro makes fair progress

By Tony Smith

A LEADING terminal manufacturer's offering, which is communicating first and microcomputer second, is making slow but steady progress in the Australian market place.

Beehive International's Topper was one of the first specially designed communicating micros to be released here, combining a de facto standard Z80 CP/M 64K-byte twin floppy micro with Beehive's established expertise in IBM 3270 emulation and asynchronous terminals.

The managing director of local Beehive distributor Datatel Pty Ltd, Deiter Retz, said only a small number of units had been supplied.

Datatel has been taking part in on-site demonstrations and trial installations in working environments.

It demonstrated Topper at a management seminar for one of Australia's largest manufacturing companies and made it available to each person for first hand experience.

"We found that going through some very basic demonstrations with programs such as Supercalc and Wordstar, many began very quickly to crystallise ideas on how they could use a desk top microcomputer to their advantage and benefit," Retz said.

"In choosing our marketplace among some of the largest companies, we are well aware of the advantages of communicating desktop microcomputers.

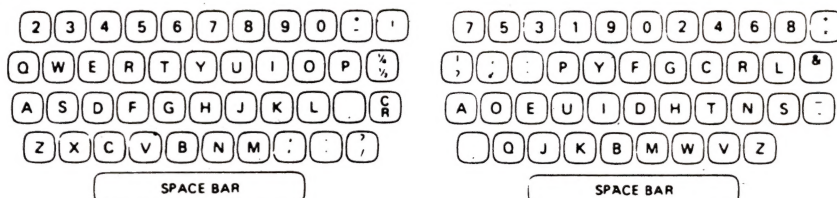
"Our approach, therefore, has been to always involve the data processing manager in demonstrations and negotiations.

"This, we feel, differs from the approach of others who do not sell communicating micros and who would prefer the DP manager left out of the proceedings."

Topper was designed to be compatible with the IBM 3270 terminal range which gives it a very substantial market, but which has not excluded it from non-IBM areas.

Datatel has written a file transfer utility program for Topper which allows it to communicate with ASCII host computers.

The company anticipates the release soon of a version of Topper which emulates the TD880/MT893 features in a desktop microcomputer.



Standard Qwerty keyboard on the left compared with the Dvorak version on the right.

Qwerty gets the thumbs down

By Patricia Keefe

A LITTLE over 100 years after the introduction of the typewriter, typists' fingers are still tripping over little-used keys in their journey toward the more popular keys, awkwardly placed on the outer reaches of what is called the Qwerty keyboard.

Now all of that may change.

Last week, after 12 years of sub-committee debate, the American National Standards Institute's (Ansi) board of standards review adopted the alternative keyboard for alphanumeric machines, which is intended as an alternative to Qwerty.

The Ansi X4.22 standard is based on a keyboard design introduced 50 years ago by August Dvorak, a University of Washington professor. Unlike Qwerty, which is named after the first six letters on the keyboard, the Dvorak, or simplified keyboard, takes into account the frequency of letter usage within a language.

Dvorak supporters claim the keyboard has three advantages over Qwerty: greater speed, fewer errors and more comfort. The X4.22 standard differs from the Dvorak design only in the placement of three punctuation keys.

Advocates such as the Dvorak International Federation and Ansi

believe D-v-o-r-a-k will soon spell relief for millions of typists. But, because they will have to learn how to type all over again, user resistance could sound the death knell for the new standard.

For those earning a living by typing the standard's have three advantages — more speed, fewer errors and more comfort — may win them over. For example, 3,000 words can be typed from Dvorak's home (middle) row alone compared with about 100 words on the Qwerty setup.

However, three problems remain for simplified advocates to surmount: tradition, the costs of hardware replacement and training and motivation. A new generation of typists exposed only to Dvorak is expected to erode tradition, and the prospect of an increase in productivity of even 5 per cent to 10 per cent supplies the motivation and justifies the cost.

The software capability for switch-selectable keyboards has been available from vendors such as Apple Computer Inc, Olivetti Corp, Exxon Corp, SCM Corp, Wang Laboratories Inc and Osborne Computer Corp, according to Virginia Russell, president of Dvorak International Federation.

• Patricia Keefe is a writer with Computerworld US.

Mitsui releases comms terminal

THE Telecomet 3100 communications CRT terminal has been released by Mitsui.

The Telecomet is a sophisticated message communications terminal that supported input, editing, transmission and reception of messages, a Mitsui spokesman said.

Messages could be input from keyboard or papertape, edited then left for automatic transmission.

Messages buffered in the terminal could be re-edited at any time and

frequently used formats or text could be re-used.

Password protection was available for sensitive information.

The spokesman said the Telecomet could be used with a variety of communication protocols and could output messages to a printer or papertape punch.

A range of function keys supported single key control of most communication functions.

Further information: Mitsui Computer Systems, 1-3 Rodborough Rd, Frenchs Forest NSW 2086. Tel: (02) 451 7711.

Motherboard for graphics on Apple IIe

By Scott Mace & Ian Webster

SYDNEY — Apple has announced the release of a Rev. B motherboard for the Apple IIe.

Apple Inc claimed the new motherboard was launched to support a "Super hi-res" graphics mode in conjunction with the Extended 80-Column card.

Other sources have indicated that the Rev. B release is to fix an obscure hardware bug on the Rev. A motherboard that causes memory addressing problems when the extra 64K RAM available on the Extended 80-Column card is used.

"Super hi-res" or "double density hi-res" is based on a programming technique to double the number of horizontal pixels on the hi-res graphics screen. This technique is well known in the user community, but not often used as the vertical resolution remains at 192 pixels.

George Johnson, US Apple IIe product manager, said that "virtually all of

what's available is going to become Rev. B.

"All of the products on dealers' shelves will be Rev. B, because I think they've sold through most everything that they've got that was Rev. B," Johnson said.

As of March 1, dealers were getting IIe's with "nothing but Rev. B."

Production of the IIe began in earnest in October at the company's Dallas, Texas, facility, while the B board was still in the testing stage.

Johnson said Apple decided to go ahead and ship the first month's worth with the already manufactured A boards and then bring in Rev. B.

If Apple had waited for Rev. B to become available, it would have delayed introduction of the IIe, and Apple thought that few people would want the B board immediately.

"And six months between revisions is par for the course," he said.

Users could even see a Rev. C motherboard later this year.

Apple Australia's managing director, David Strong, said he believed all PAL versions of Apple IIe had the Rev. B motherboard. The revision, therefore,

should not affect Australian Apple users.

Full-screen low-resolution graphics for the IIe are 40 blocks by 40 blocks. In the Normal hi-res mode, resolution increases to 280 by 192. The Super hi-res mode, previously achieved only by fancy software programming, is 560 by 192.

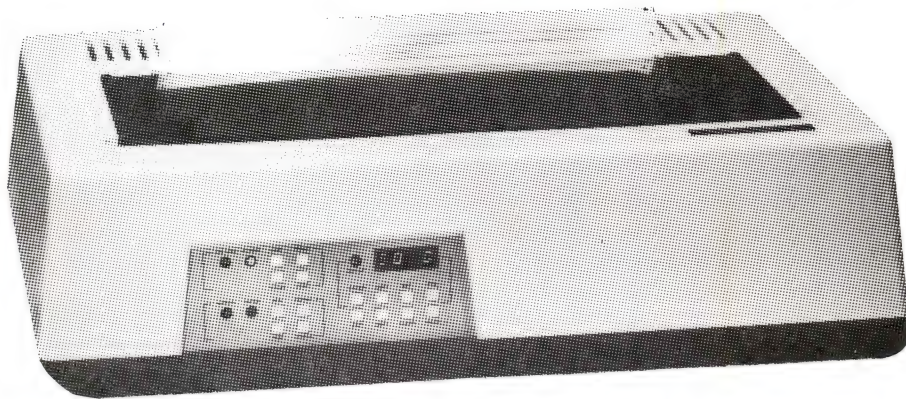
Johnson said the Super hi-res mode improves the look of diagonal lines and other shapes on the screen that use "stair stepping" to simulate those lines.

"If you're going to write software one way for 280 by 192," Johnson said, "you're going to have to redo some of it to also support 560, because you can't just support 560 if you want to sell it to everybody."

A special toggle using the AN3 output to the game-paddle port will allow users to switch between Normal and Super hi-res modes.

For the time being, any super hi-res software may only be passed around the programming community. It will be later, if at all, that the new software works its way into commercial products. In a few months, though, purchasers of such packaged software with Rev. A boards and extended cards may themselves be taking their Apples back to the dealers.

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Two leading industry figures quit

SYDNEY — Gary Blom, managing director of The Computer Company, has resigned and Robin Firth, managing director of NEC Information Systems, has resigned to pursue his consulting interests.

Blom was a leading advocate of the retail marketing of business microcomputers and the importance of the IBM-PC in establishing an industry standard.

TCC was the first company to market a Japanese microcomputer in Australia and established the Panasonic JB-3000 in the business market through the Angus & Robertson business centres and the development of the Attache accounting software.

Blom will remain a director of the company. He said that Singer, which acquired a majority shareholding in TCC, needed to consolidate the business and that his talents as an entrepreneur were less important now the company was established.

John Barsing, product manager of TCC has been appointed acting general manager.

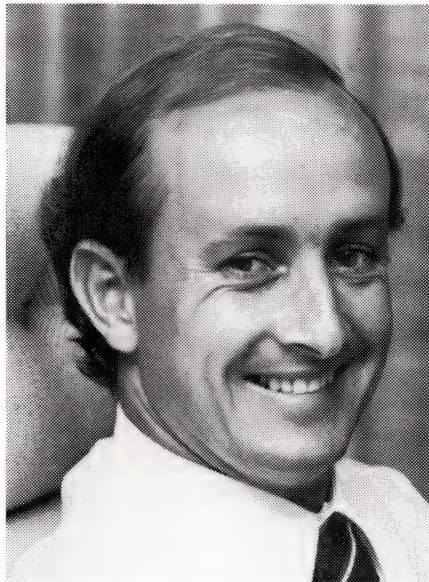
Wordstar sales top 500,000

SEYMOUR Rubinstein, managing director of MicroPro International, has claimed that Wordstar had sold more than 500,000 copies. He said the product was being developed continually and had been rewritten three times.

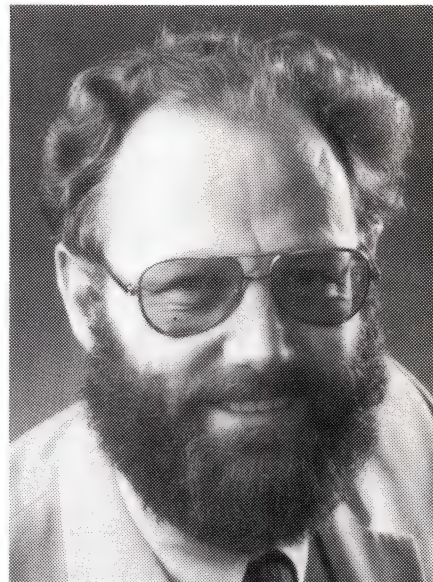
"Wordstar had been designed for production workers," he said. This accounted for the design and features of the system.

He countered criticism of Wordstar as old fashioned with the comment that... "Wordstar used the home position methodology." This had been adopted by all typists rather than the function key approach used by programmers.

Rubinstein cast doubts on the effectiveness of some of the new executive workstation systems being developed. He said they did not appear to be based on the way people



Gary Blom... different talents



Robin Frith... consulting

worked effectively in high production environments.

"All of the new products developed by MicroPro would reflect the importance of production tools," he said.

Rubinstein said he expected Wordstar would be enhanced with overlay features and Starburst, a job control language to combine all of the MicroPro products in a job sequence.

"Customer satisfaction is the only measure of success in the software business," he said.

Apple wins major network order

SYDNEY — Apple has won an important order for a distributed network of Apple III computers.

The Jaguar-Rover group, formerly Leyland, has ordered a network of 109 Apple III computers using the locally developed Netcomm synchronous communications card to link the machines to an IBM 370/158 in Sydney.

Leyland will use the computers as multipurpose workstations at dealer sites to monitor and collect sales, stocks and spare parts data.

The installation is important for Rudi Hoess, managing director of Electronic Concepts, who has promoted the use of microcomputer based corporate information system.

Elcom System Peripherals, a US company owned by Hoess manufacturers and distributes the Netcomm card.

The card will be complemented by a long awaited auto answer/auto dial modem under development by ESP at an Australian factory.

Stone McColl launches power products

GOULD Inc's electronics power division has launched two product lines through its Australian agent, Stone McColl.

The San Diego based corporation will market a 6000 series UPS available in a power range from 15KVA to 45KVA three phase output and GSC series tap switching line conditioners.

The UPS utilises a unique transformer and charger design to provide a 12 phase conversion from the incoming three phase power, resulting in less than 10 per cent current distortion feedback to the AC source, Gould said.

The hybrid inverter combined pulse width modulation (PWM) and step-wave techniques for quality voltage, better transient response and the operating efficiency.

Overall efficiency was 86 per cent, which was previously only achievable for UPS's above the 100KVA rating and inverters operating at 240VDC or above, Gould said.

The line conditioners will be available in four sizes — 500 VA, 1200 VA, 2500 VA and 5000 VA. This design eliminates potentially damaging transients prevailing on other electronic tap-switching techniques, Gould said.

They were designed and styled for the office environment with features such as low audible noise, compact size and high surge current carrying capability.

Further information: Stone McColl Pty Ltd, 140 Springvale Rd, Melbourne, 3171. Tel: (03) 546 8622.

Three days of micromania

By Ian Webster

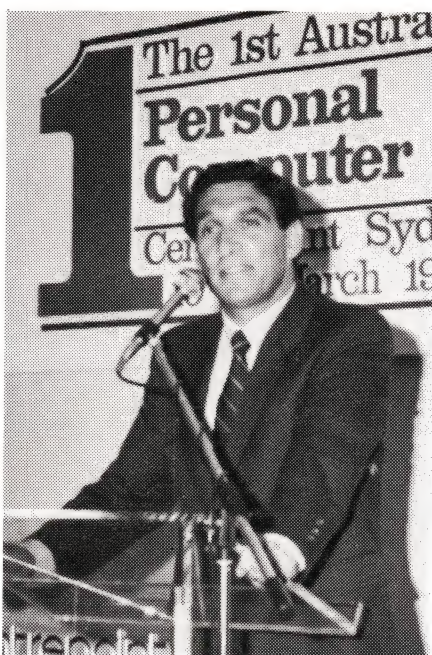
IT STARTED with champagne, crepes and the NSW Attorney-General, Paul Landa, for the assembled press and exhibitors. After words of encouragement from the Show organisers, Landa and an Apple II, the first Australian Personal Computer Show began.

The show had been the subject of intense interest within the Australian microcomputer industry for several months, providing the first opportunity for a new industry structure to assert itself. The days when Apple, Tandy and Dick Smith were the dominant representatives of the micro industry at local shows are gone.

At times it seemed that almost anyone involved in the Australian microcomputer industry was crammed into the aisles of Sydney's Centrepont. An extraordinary amount of business was done with the full breadth of the emerging 16-bit hardware market on display and several international companies looking for local distributors. Despite comments from some of the newer members of the micro industry about being overwhelmed by the attention of local users and consumers, it was an industry show.

The show was the first time that the full extent of the industry has been on display and the opportunity to assess the claims of the local contestants for the micro market was irresistible.

Barson Computers illustrated just how successful the Sirius has been in Australia. After a shaky start the Sirius dominates the market for sophisticated 16-bit micros, with support from technical and academic users. The Sirius



The show was opened by NSW Attorney-General Paul Landa

has become the vehicle for some superior UK software that should ensure its continued success. The Vuwriter, a scientific word processor from Manchester University, driving a Sanders

printer, showed what was possible with some superb printed equations.

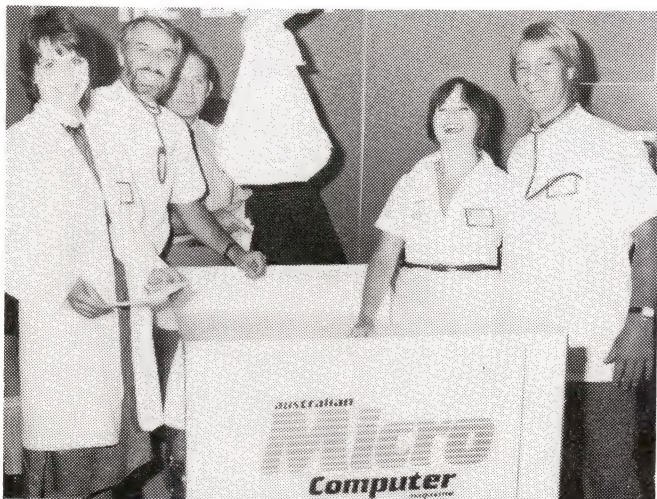
Surprisingly, the Sinclair Spectrum was not promoted heavily on the Barson stand.

Apple showed the importance of providing an educational experience with superb Lisa and Apple IIe presentations that were relevant to visitors. People appreciate being shown computers doing things that they can understand. Apple was probably the only exhibitor which understood this and provided an experience that will be remembered when micros are discussed. Apple Cares, OK.

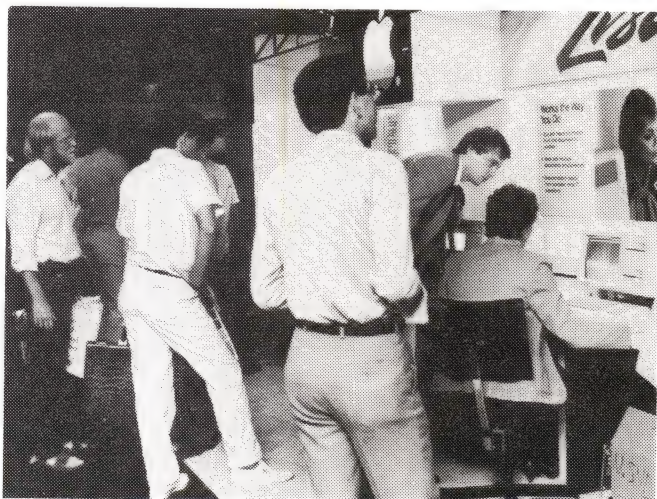
During the show Apple served an injunction claiming that a Golden II computer on display on the Micro-educational stand infringed certain Apple Inc copyrights. The machine was removed and replaced next day by a Medfly, an Apple compatible machine to be locally distributed by Data-Universe. Franklin, manufacturer of the Apple compatible Franklin ACE, was at the show looking for local distribution, so the ACE should be available soon.

IBM had a small stand displaying the IBM-PC XT. The release of this machine the day before the show, ensured that it was the subject of intense discussion. Most competitors indicated that they would monitor the situation carefully and start promoting their hard disk

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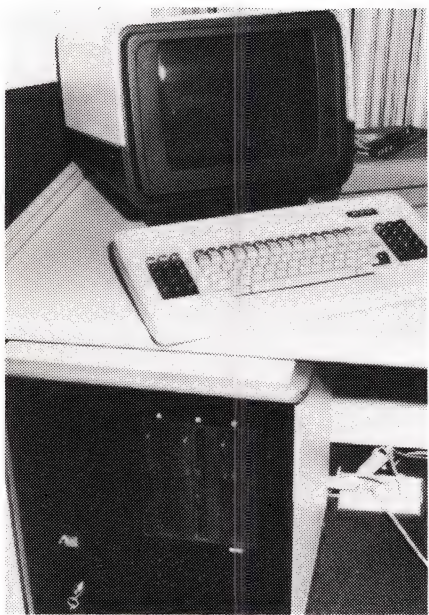


Computerworld launched its new 'baby' — this magazine — in sensational fashion with staff dressed as doctors and nurses.

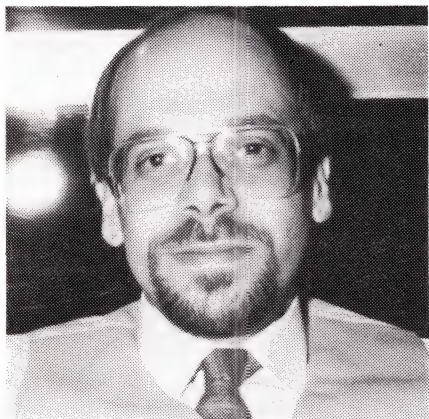


Lisa was a show-stopper and demonstrated Apple's attention to providing visitors with relevant presentations.

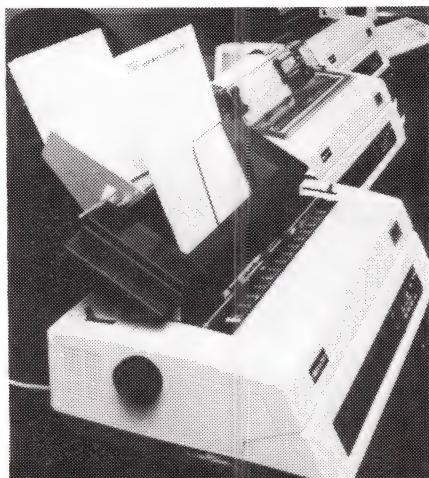
APC Show



AED's Supercomputer



Julian Barson of Barson Computers



Low cost daisywheel printers

(Continued from previous page)

drives. IBM really should follow Apple's lead and get serious about becoming involved with the community, if it wants to establish a strong micro presence.

Osborne showed how active the Australian company has been in extending the product. Options on display included a 52/80/100 column screen adapter, a battery Powerpac, an auto-dial/auto-answer modem and a networking system using a hard disk. Adam Osborne was refusing to comment on new product, but we should be hearing a lot from Osborne this year.

DEC and Olivetti looked a little lost. They both had big stands with lots of equipment, but little to excite the visitor. They looked as though they would have been more comfortable at a Data '83 show. The DEC micros are superbly engineered and the Olivetti may become successful as a useful range of software is being made available.

Epson had a crowded stand, featuring the portable HX-20 and the new QX-10. The QX-10 needs a strong marketing push to get established and there was some suggestion that there may be a reorganisation of support for Epson in Australia.

There was a strong Cromemco presence and Tandy and Dick Smith both had substantial stands, with Tandy showing the Model 16. It indicated that dealer training for the Xenix release should start in April.



Commodore's 500 styled by Porsche

The NEC stand reflected the success of the APC computer and the effort that NEC has put into building a strong support team for the product.

Other Japanese computers were well represented, but with the exception of Sanyo a bit light on software for their machines. Seiko's 8600 machine looks interesting and Mitsui, Toshiba, Canon and The Computer Company had a range of machines on display.

At times the Commodore stand looked like a Grace Bros buyers' convention as the mass merchandisers who are about to spread the VIC 20 through the department stores of the national came face to face with VICmania. Few people in the industry realise the extent of Commodore's success with the VIC 20 which reflects the success of Commodore around the world. The release of the Commodore 64 was enthusiastically received and the long awaited Porsche designed 500 and 700 business machines were on display.

Applied Technology, displaying a color MicroBee and a disk drive unit, had serious overcrowding problems on its stand. Company representatives were under a lot of pressure from agitated teachers who have been waiting for delivery of the disk drive unit promised 15 months ago.

The Australian release of CP/M 3.0 was available from Aussie Byte. It has a logically designed Z80A/256K RAM motherboard with all the options for less



Tandy showed its Model 16

APC Show

than \$A1000 that has been designed for the latest 8-bit CP/M systems like TurboDos and CP/M 3.0. We will be hearing more about this company.

Printers were out in force with cheap daisywheel printers like the Daisywriter, state-of-the-art dot matrix printers like the Sanders and a host of cheap printers from Epson, Case and Amust. Users should shop around for the best price.

Software companies were not well represented. Microsoft had a stand promoting its consumer product range and Imagineering ran a hospitality suite for weary computer dealers looking for somewhere to sit down.

Software Source, promoters of the wordprocessor Spellbinder, has matured into an impressive CP/M shop. It now has an agency for Compuvision and marketing its software in Australia.

Canberra company, Micro Stat, has developed a useful range of CP/M statistical and data analysis software and Lothlorien was demonstrating the Corvus version of a library management system that was not as impressive.

VIC software dominated the rest of the software stands, with EMI/Thorn previewing its software for the Atari and VIC, Progressive Software with some really hot UK game software and the Wizware home educational software from Ashton Scholastic. Ashton Scholastic, publishers of Electronic Learning, said that it would also publish *Family Computing* and *Teaching and Computers* magazines later this year.

Book publishers were everywhere,



Commodore's line-up of VIC 20s at times looked like a Grace Bros youth buyers convention

offering books on every aspect of micro-computing. Doubleday attracted a lot of attention from Apple Adventure enthusiasts with its range of adventure games from TSR, the ultimate authority on modern D&D gaming.

User group corner was well supported with Australia's largest group, the NSW Apple User Group, and local Sorcerer, TI and ZX80 groups represented.

The APC show was a great success

with the Australian industry and 24,000 paying customers coming together for three days of micromania.

Two products that were absent and that would have added to the show were the Wicat and the Convergent Technologies machines. The public's response to Lisa indicates they appreciate the opportunity to experience the superior microcomputer environments these machines support.

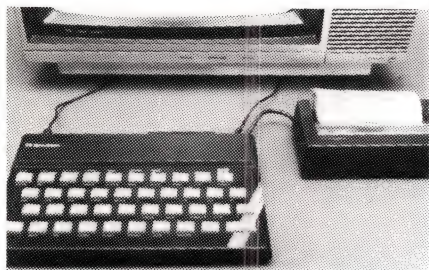


IBM gained attention by announcing its PC-XT the day before the show



The user group corner was very popular

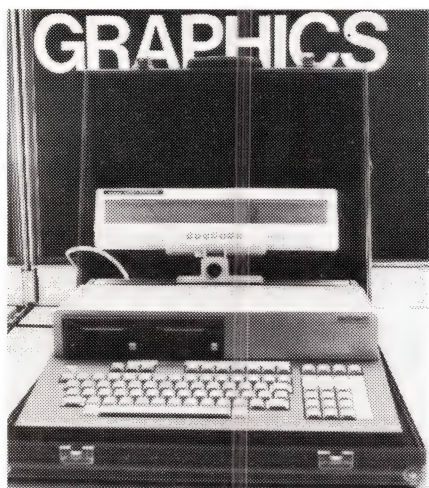
APC Show



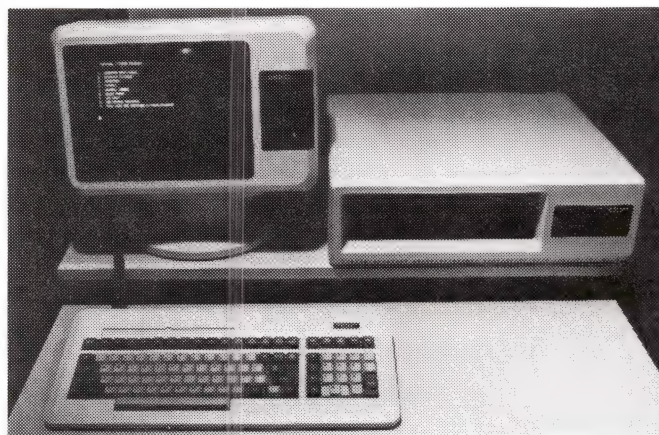
Sinclair Spectrum from Barson Computers.



The IBM XT made its debut.



The Sord M23P with LCD option.



Seiko's 8600 multiuser system has similar specifications to the XT.

Hardware highlights

THE 1st Australian Personal Computer Show was awash with new microcomputers. On display were 11 computers about to be launched onto the Australian market and another nine to be released later this year.

IBM led the charge with the worldwide release of the IBM-PC XT, a new version of the PC that has bundled all of the options necessary to provide a base system for the modern user.

The system is based on the PC master unit with eight expansion slots, 320K floppy disk drive, 10M-byte hard disk, 132K RAM and built-in asynchronous comms adapter. The system has been aggressively priced at \$A7892 and is available from all IBM dealers.

The Cromemco C-10 is at the bottom end of the Cromemco range of computer systems. The machine is a personal computer, with good communications facilities, built to the austere and reliable standards that are the strength of Cromemco machines.

The system is based around a 12-in CRT with an 80x25 display that contains all of the system boards. The processor is a Z-80A with 64K-bytes of RAM and communications ports. The keyboard and 390K disk drive are attached by cable to the back of the CRT enclosure.

The operating system is Cromemco's CP/M compatible CDOS and applications software for word processing and spreadsheet analysis is included with the machine.

It should prove popular with users of large Cromemco systems as an intelligent terminal and standalone personal computer. Retail price from most Cromemco distributors is around \$A2300 before tax.

Commodore announced the release

of the Commodore 64 to dealers at the PC show. This computer should be one of the largest selling personal computers in 1983. Nearly 200,000 machines were sold in the first six months in the US. The C64 has been carefully designed to take advantage of the current generation of 6502 based personal computers.

The computer is packaged in a VIC 20 enclosure, uses a 6502 compatible 6509 microprocessor with 64K RAM. The system includes Commodore's VIC Basic 2.0 in ROM and is compatible with the full range of VIC peripherals. The screen display is 40x25 with block graphics and 300x200 bit mapped graphics. The graphics chip also supports Sprite graphics and a sound synthesiser chip supports three voices.

Commodore and a vigorous third party software industry is releasing most of the personal computer software standards for the C64. Retail price is \$A699.

Three Sinclair Spectrum's were tucked away on the Barson Computers stand and orders for the machines were being accepted.

The Spectrum is an addition to the ZX family of microcomputers, featuring a Z80 processor with 16K or 48K of RAM packaged with Sinclair's usual flair. The display has a 32x24 text display and a 256x192 bit mapped display. Eight foreground/background colors are available mapped into the character cells.

The keyboard has 40 moving multi-function keys and a cassette interface and port for the ZX printer and the long awaited ZX Microdrive are available at the back of the machine.

(Continued page 20)



Epson's QX-10 implementing the HASCII interface.

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APC Show



The Z80A-based Toshiba T100.



Canon's AS100 with color printer.



Commodore 700 — styling by Porsche.

(Continued from page 18)

An enhanced version of Sinclair Basic, with good support for graphics is in ROM. Software for the Spectrum will be sourced from England as the machine becomes available in Australia. Retail price will be \$A299 (16K) and \$A399 (48K).

Distributors of Japanese computers announced several new products. Top end machines aimed at the IBM-PC market were released by Canon and Seiko.

The Canon AS100 is an 8088 based MS-DOS machine. Housed in a very large box the machine has up to 500K RAM, high resolution color graphics and dual double sided, double density, double tracked 5-in drives with 640K per drive. The system has 8-in drives and a 10M-byte hard disk as options. An interesting color printer is included with the system. Local release should be this month.

Seiko released the 8600 multi-user business computer with very similar specifications to the IBM-PC XT. This system is an 8086 machine that can be extended to a multi-user system running MP/M or Oasis. Standard configuration is 128K RAM expandable to 512K with an integrated 640K floppy drive and 10M-byte hard disk.

CP/M-86 or MS-DOS is the standard single-user operating system and the system is supported with a full range of languages. Additional CRTs can be plugged into the serial ports on the system unit. The system looks good, although the graphics capacity of the system are not up to the standard expected on systems of this type.

Mitsui and Toshiba had their new Z80A systems on display. Both systems reflect Japanese design philosophy with the attempt to add portability.

Both systems feature excellent high resolution color graphics, 64K RAM and CP/M.

The Mitsui M23P, part of the Sord family, features built-in 3-in microdrives and LCD display and battery pack for portability. The famous PIPS integrated spreadbase has been enhanced for the new machine.

A home computer, the Sord M5 intended to compete against the VIC20 was also on display. This is a cartridge based machine with a limited range of peripherals but good graphics and color.

Warburton Franki had Epson's first computer, the QX10, on display. Little is known about this machine in Australia,

which is unfortunate because it is one of the most interesting machines that has been released in the past year.

Epson has attempted to solve some of the user interface problems by building a sophisticated user interface into the machine. The QX10 runs most standard operating systems and applications software but has its own front end that handles interaction with users. The system looks great and should make an impact in the Australian market.

Several companies were previewing machines that they intend to release later in the year.

Commodore was displaying the 500 and 700 series of business machines, with coprocessing 8088 and 6510 microprocessors.

Futuretronics had an Atari 1200XL, regarded as an extension and repackaging of the Atari 800. The impressive styling with chrome plated function keys will not be enough to capture a significant market share, particularly with the PAL version unavailable until Sept.

Texas Instruments previewed a smaller version of the TI 999/4 micro-computer called the Basic 99/2. This machine is a small memory, tape based machine that has some software compatibility with the TI99/4A. It is expected to retail under \$A200 within six months.

TI also had an interesting handheld computer called the Compact 40. This has 6K RAM and a 31 character LCD display. The machine has a very powerful Basic in ROM and will accept small ROM cartridges of applications software.

The Computer Company had several Panasonic JR200U personal computers on display. This machine is a small cassette based computer with a 6802 equivalent processor, 32K RAM and a 32x24 graphics display with 8 color mapped as character cells. Programable character graphics are available. A built-in PAL modulator enables the machine to be used with a television set. TCC plans to release the machine in May with a retail price under \$A500.

Microeducational had a Medfly computer on display. This is an Apple compatible system based on the Basis 108 developed in Germany. The machine features 6502 and Z80 processor with 128K RAM, 40/80 column display and Apple hires graphics. The machine is claimed to be compatible with all Apple software and offers all of the features of a fully configured Apple system at a very competitive price.

Tax traumas in high-technology

OUTSPOKEN founder and chairman of Osborne Computer Corporation, Dr Adam Osborne, evoked agreement in Australia about the politics of sunrise industries.

He claimed most governments had one or two "sacred cows," particularly taxation systems, which must be sacrificed before a viable high technology industry could be established.

Government investment without special provisions reducing taxation on subsequent profits would not work.

Dr Osborne said companies needing government help were not viable, because they had failed to attract money available in the equity market.

He cited Singapore and Ireland as examples of the success of tax holidays for companies investing in high technology.

Countries like these would get more

back in the long term than they would have gained through small taxes on profits.

Dr Osborne advocated employee stock option programs similar to the ones applying to many companies within the US.

He also said a sunrise industry needed a "critical mass" of businesses within an area to attract the necessary satellite industries economically.

Sales targets should be only 10 to 20 per cent for local consumption as it was the 80 to 90 per cent exported where... "a country benefits."

Demand for XT puzzles IBM chief

THE man at the helm of IBM's Personal Computer development has admitted he hasn't got any idea what users will do with the corporation's second desktop micro, the PC XT.

IBM executive Don Estridge of Florida said: "Customers seem to be more than we used to think they were." "While it is unclear why many users would need such power, there is no doubt the PC XT's full capacity will be exercised."

He told the Australian PC congress that IBM planned to penetrate all major areas of the business and home micro markets, but declined to reveal what would be the next addition to the PC family.

"Two years ago we were seen as committed to big, complex and expensive computer systems and as rather indifferent to consumers. Now consumers take IBM seriously as a company that takes consumers seriously."

Estridge said that, whatever the reasons, it was clear the micro market would continue to explode over the next decade.

However, big systems marketing was likely to continue to contribute the lion's share of IBM revenue, he said.

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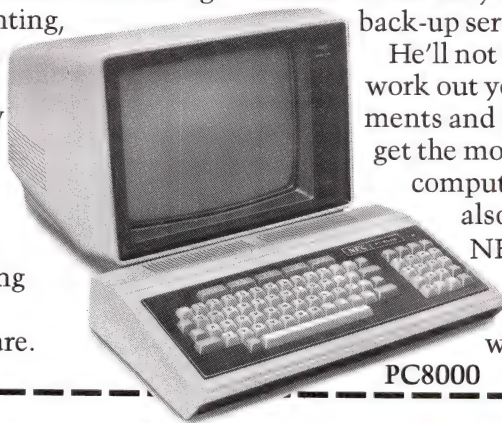
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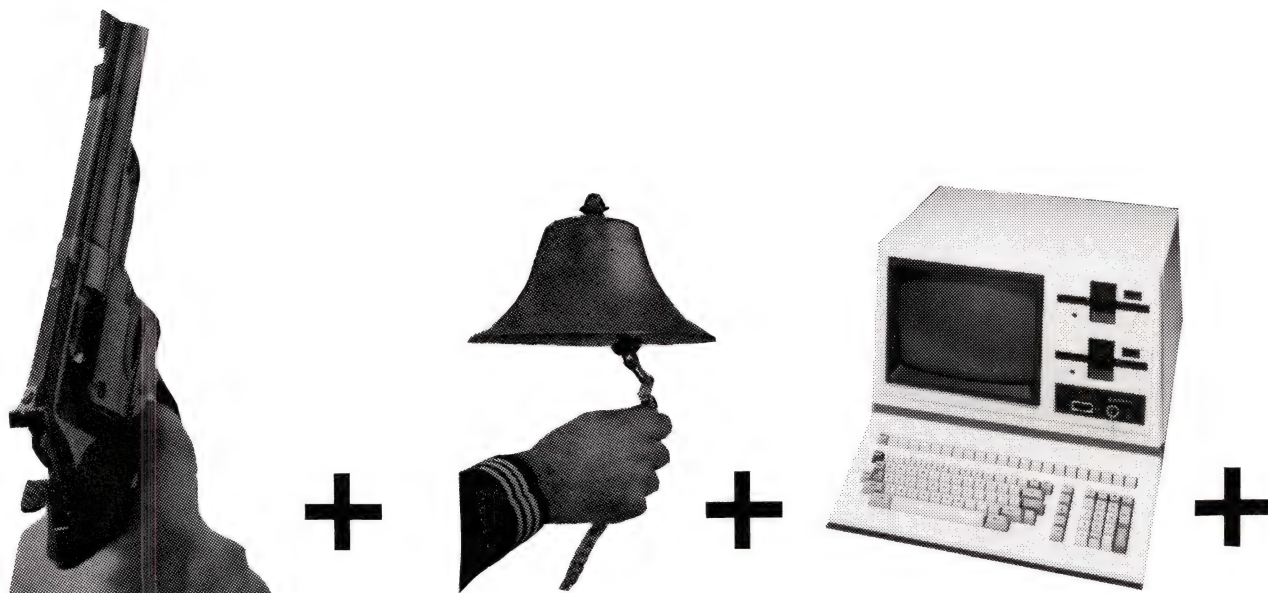
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Frontiers of sound

WHEN considering the many uses of computers in the arts today, it might be useful to see if any of these are actually capable of leading us into new areas of experience. The cliché that technology automatically leads us to new experience is just that — a cliché. Just as often it can merely give us a new way of doing the same old thing. This sort of goal-oriented problem solving may be satisfying to the scientist or the technician. However it should be inherently unsatisfying to the artist whose work should be to delve into areas that we don't know how to deal with, to constantly open up fields of activity in the hopes that some of them may prove fruitful, useful, or simply beautiful and fascinating.

This is the first of a series of articles that looks at some of the uses of microprocessors in the arts in Australia. Later articles will report on some specific cases of artists using micros.

But the first question must be: which uses of computers in the arts offer us anything truly new, and which do not? If the computer can offer us nothing but a more efficient way of doing what we've already been doing, its effect will be minimal for the exploratory artist, of no more intrinsic interest than a hammer. Such technology may help the artist get

things done, but it won't help that artist to change his mind.

Computers are used for the performance, analysis, and composition of music. But many of these uses could just as easily be accomplished by other means. Take the example of the breaking glass used as a sound effect in Kate Bush's "Babushka," realised with the Fairlight CMI. The computer may offer the producer the ability to have the glass sound at any pitch and whenever it is wanted, but the same results could be accomplished with the careful use of tape.

STORY:
Warren Burt

DESIGN:
Ian Hartley

Also, in the analysis of music, if the computer saves time by reading through reams of data. The results may be appreciated, but will hardly be interesting.

Many computer composing programs are designed to produce "goodness-of-fit" results. That is, if a program is set up to make decisions and generate output that can be realised as musical information; its results are then subjected to "goodness-of-fit" tests to see if this "computer composed" music sounds like "normally composed"

music. This can only peripherally lead us to anything new.

For the exploratory artist, the notion of greater speed and efficiency does not accomplish anything but greater speed and efficiency.

For years I have written music using precise algorithmic methods, following logical procedures strictly to derive the pitches and durations of my music. I worked the results out on paper. A three minute movement for string quartet might take a week to work out and transcribe. Then I bought a micro — an AIM-65 using Forth — and developed a program to make the decisions I would have made in writing this three minute movement for string quartet. Once developed, this program took about 40 seconds to run and about 3 minutes to print out the results which I then transcribed into score form. Was any time saved? No. It took a week to develop the program. The total time expended was about the same.

Further, unlike industrial control programs which could be used many times, this composing program was specifically designed to be used once, as it is a tenet of contemporary composition that each piece should embody its own unique logic systems.

So there was no point other than the trivial one that I could now consider myself a "computer-composer."

Only if the micro had led me to make decisions I would not normally have made; only if it had brought me into

• Warren Burt, a contributing editor of *Australian Microcomputer Magazine*, is a prominent member of Melbourne's experimental music community.



The microprocessor can be helpful here in three ways:

- It can help us set up processes, the results of which are not predictable.
- It can make available to us sounds and sonic resources previously unavailable by other means — consider the family of sounds produced by the technique of frequency modulation.
- It can give us room to explore new logic systems by keeping resources as open ended as possible.

Unfortunately, it is on this third and last point that most of the currently available micro based music technology fails.

Nearly every new micro based music system has crippling limitations that make their use in a truly exploratory music difficult, to say the least. These limitations are imposed as much through the engineer's ignorance of what artists need as through that old false ploy of economic necessity.

Consider just one area of interest to exploratory musicians, tuning. All the new systems promise an infinity of possible tunings. But none of them actually deliver it.

One system, the Mountain Hardware Music System, offers a pitch resolution of 0.5Hz per step. This is not even accurate enough to play the blues with all its marvellous pitch bends and vibratos, much less explore an "infinity" of tunings. Another system, the Fairlight CMI, offers admirably precise tunings for any equally tempered scale divisions desired, forgetting that equally tempered scales are only half (if that) of the tuning practices that composers are interested in — the other half consisting of various non-equal, just, rational and random tunings.

For those interested in exploring tuning, even in 1983, they would be much better off developing their own system — whether out of wood, brass, wire, or circuitry — rather than relying on any of the currently available commercial products.

The ultimate effect of these limitations is to cut us off from areas of exploration, and thus, to merely offer us the past repackaged. And the uses that many of the new devices such as drum machines and portable keyboards are being put to by many so-called "post-modernist" music groups bears this out.

If designers were truly interested in aiding exploration, rather than reproduction in the arts, they would do everything in their power to keep their designs as open-ended and flexible as possible.

contact with what Adelaide art critic Donald Brook calls a "Heavy trading on chance and accident"; only if it had brought me into contact with logic systems I would not otherwise have used and led me to discoveries, would my use of the micro have been justified from an exploratory point of view.

Fortunately, using Forth, this was the case. The very basic nature of its building blocks revealed many different ways of constructing logic systems. Forth is an ideal language for the arts, because in it everything is kept as open-

ended as possible, with a minimum of restrictions placed on design and function. Therefore, I was able to use a micro in an exploratory manner.

This leads to a set of criteria by which to judge if an activity using a micro is exploratory or not. Exploratory activities, firstly, cannot be goal-oriented, except in the most trivial sense. Otherwise they would be exercises in craft, and not exploration. Secondly, exploratory activities must gain some of their impetus from a direct confrontation with the nature of the materials they deal with.

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Doing it live on election night

THE television networks promoted their election night coverage with promises of computer assisted analysis. Viewers were promised graphics, accurate predictions and commentary, all courtesy of the network's computer system in the national tally room.

As we were introduced to the commentary panels and their computer systems, it was clear that the commentators on the computer systems without understanding the implications of live computer-assisted analysis. Any problems with the computer systems and the commentary would break down.

The Channel 9 panel looking for a coalition swing, grabbed at its computer's prediction of an 11 per cent Coalition swing although the electorate data didn't support the prediction.

Veteran political journalist, Alan Reid, ended the night with a comment that reflected the confusion on the Channel 9 panel as the Labor Party claimed victory: "Place not your trust in computers."

Later the press would portray this public display of computer fallibility as light relief against the drama of a federal election.

What happens in the national tally room on a Saturday election night?

As soon as the polling booths close, counting starts and the results begin to flow from the booths to the district returning officer in each electorate. An electorate total is calculated and phoned to Customs Network connected to the Department of Consumer Affairs computer in Canberra. The tally room computers pick up the figures from the Consumer Affairs machine and prepare the data for broadcast to viewers or update their prediction of the result.

The Electoral Office is not impressed with the claims of the predictive programs. John Fazio, from the Sydney office, said: "Without information about the source of data from an electorate it is impossible to predict the results from a small percentage of the count."

This truism dominated the attitude of commentators on election night and was challenged by the performance of the Labor Party human computer based on clever placement of scrutineers in key electorates.

The TV networks have developed computer systems over the last few years to manage the presentation of electorate data to viewers.

Channel 10 used the CSIRO Predictive computer. The Predictive computer's track record, with correct predictions of the 1980 Federal election and recent Victorian and West Australian elections, had installed the machine as a warm favorite to call the 1983 result first.

A commentator driven system is needed not computer driven commentators

The predictive system is a Fortran program developed by Ross Cunningham on a VAX 11/750. A PDP 11/10 is used on the tally room floor to collect data from the Consumer Affairs mainframe, drive the commentator's screens and the character generator for the broadcast image.

Channel 9 had an untried system, developed by Tony Wyatt on a PDP 11/23 with a front end based on matrix cards to generate the graphics for the broadcast signal.

The ABC used two PDP 11s to support its national television and radio network. A PDP 11/03 was driving the tally room screens, and digital color terminals were being used to generate graphics for broadcast. The system was written in Assembler and provided the analyst team with limited facilities to explore the raw electorate data.

Peter Wessels, ABC news producer, said it had tried to develop a commentator driven system rather than computer driven commentators. He expressed confidence in his commentators to provide better quality predictions than any of the computers.

Channel 7 provided limited election coverage, using a PDP 11/23 to calculate electorate swings.

The computer systems were installed in the Canberra tally room during the two day rush before election day. The Electoral Office had been providing several test transmissions to the tally room, but there was some anxiety about the communication lines to Consumer Affairs and the problems of running real time systems in the chaos of the national tally room.

As the polling booths started to close in the eastern states, the CSIRO front end had a major hardware failure. Ross Cunningham also suspected corruption in the VAX, but didn't get time to reboot

the system. Alternative arrangements were made to generate the broadcast image and all electorate data was inputted manually for the rest of the night.

The viewers were introduced to the commentary teams and their machines as the first figures started to arrive at the tally room.

There was a solid early swing to Labor and the Labor Party human computer — running 15 minutes ahead of the Electoral Office by using scrutineers in key polling booths in key electorates — got ready to declare a result.

Malcolm Mackerras and the CSIRO computer jointly predicted a 23 seat Labor victory at 9.15, followed by the Labor Party scrutineers confirming at least a 15 seat victory.

The Channel 9 machine suddenly predicted an 11 per cent swing to the Coalition, although the electorate data didn't confirm the swing. The commentary panel picked up the swing figures and was thrown for the rest of the night.

The ABC was having trouble with its state by state presentation of the electorate and the Senate figures were not coming through from the electoral office computer. The machine went down for 10 minutes but recovered gracefully.

The flood of data from the electoral office had swamped the CSIRO machine and data was being entered selectively, producing a swing back to the Liberals. Mackerras stood firm with his prediction.

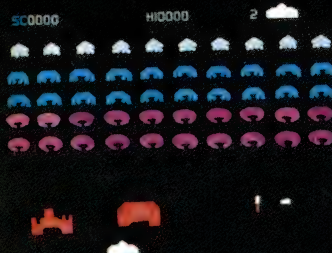
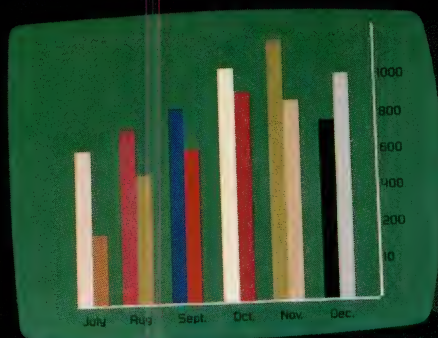
The Channel 9 panel was starting to argue with the computer, despite attempts to inform them to ignore the swing figures which were not being broadcast to the viewers.

The night continued with little use of the ABC computer graphics. Channel 9 had the best screen display although the commentary panel had given up on the computer.

The result was a clear victory for the CSIRO Predictive computer and Malcolm Mackerras who was prepared to use the strengths of the system. A close second went to the Labor Party scrutineers and a special mention for the screen display used by Channel 9.

Ross Cunningham, who developed Channel 10's system on the CSIRO's Vax machine, said it was an impossible situation setting up a system at short notice in a hostile environment.

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Micro-mainframe links



Communications has been an integral part of the industry's vision of microcomputer information systems. So far, links to mainframes have been the chief area of activity. Product Spotlight explores the issues and experiences.

Harnessing telephone technology to data transmission needs

By Brad Schultz

MICROCOMPUTERS can be intelligent, smart or dumb depending on their ability to communicate, and in the long run only the "intelligent" ones will win a firm place on the office desk.

"Intelligent" terminals can be programmed by the users, smart ones can run programs created by the supplier, while dumb terminals have no processing capability.

Eventually, terminal end users won't need to know much about operating principles of data communications, just as they don't need to know how a telephone works to use one.

But that day has not arrived, so the following explanations of fundamental terms, concepts and issues in data communications should help readers planning to link their micros with larger computer systems.

First, data communications could be defined as remote transfer of data among computer equipment. Remote may mean from several hundred metres to several thousand kilometres.

Passing data from one side of a room to another is generally done via cable that connects the source and receiving devices. This normally would not be considered data communications.

Transfer of data among computer equipment within a building or cluster of adjacent buildings is the business of local-area networks (LAN) and is a relatively new form of data communications that need not involve a common carrier (ie, Telecom). So-called long-haul data communications normally requires a common carrier and therefore has a cost pegged to rates common carriers such as Telecom impose.

Most data communications involves harnessing telephone technology to achieve computing objectives.

The telephone uses fluctuations of electrical voltage (alternating current) through wire cables. Because speech can be understood against a background of noise or without every syllable reaching the listener, phone users have tolerated a level of electromagnetic interference, cross-talk and the like.

The digital computer represents a character of data by a bit string that in

turn represents, under the simplest possible scheme, whether each of several tiny wires has, at a given time, direct current running through it at one of two possible voltage levels. A more efficient scheme calls for current to run through a single wire at any of three possible voltages which correspond to the bit pairs 01, 10 and 11, respectively, while zero voltage corresponds to the bit pair 00.

Computer users must insist on much lower rates of error in transmissions than the tolerance level of telephone users. Telephone lines created for speech traffic may need to be upgraded to support data traffic.

Phone lines laid out before World War II are reaching the end of their lifespan at a time when fibre optic cables are available.

National monopolies like Telecom are reluctant to raise rates to pay for such massive upgrading because they draw most of their revenue from phone users and often know little about the subject.

But there are also reasons why no common carrier monopoly in an industrialised nation will be allowed to avoid establishing efficient, reliable, cost-effective and universally accessible data communications service after the mid-1980s. For one thing, phone lines laid out before World War II (in some cases before World War I) are reaching the end of their lifespans at a time when fibre optic cables are available to convey speech, voice and images digitally at speeds in the millions of bits per second.

Techological and economic factors are also driving common carriers into the computer marketplace. They therefore want underlying resources on hand to support use of computer equipment they intend to market.

The device which converts the digital signal processed by computers to the analog signals passed through conventional telephone lines, and vice versa, is called the modem. Universally revered

as the product that made data communications possible, it will nevertheless be retired as common carriers around the world replace analog links with all-digital links.

It is unlikely that Telecom will provide an abundance of all-digital links to Australian users before the late 1980s. For some time, a modem must be attached to a microcomputer for it to function as a data communications terminal.

Modems will still be needed when Aussat Pty Ltd has satellites giving users microwave relay stations for data communications broadcasts across the continent — a much faster alternative to phone lines. The satellites should be functioning by September 1985.

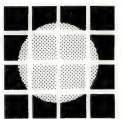
The bits comprising a text character exit a computer bit by bit (serially) or in parallel. The interface between a processor and a printer is commonly parallel, but data communications interfaces are usually serial.

Three forms of serial data communications are:

- ☐ Asynchronous — data bits of a character are preceded by a start bit and followed by a stop bit, and are sent independent of the timing of any other character transmission.
- ☐ Synchronous — the sending and receiving devices are synchronised and a stream of many thousands of data signal bits is transmitted.
- ☐ Isochronous — the character still has start and stop bits (as with asynchronous transmission), but the sending and receiving devices are synchronised.

Synchronous is much more efficient than asynchronous, while isochronous is something of a compromise in between.

As delivered by their manufacturers, most desktop computers can only support asynchronous data communications (the oldest of the above three forms), although links among large systems (mainframes and minicomputers) are mostly synchronous or isochronous. A number of information utilities, such as The Source are accessed asynchronously — from Australia via the Overseas Telecommunications Commission's Midas service and the Telenet or Tymnet value-added carriers.



Ascii code, the most widely used scheme for digital representation of text characters, represents a single character with seven bits. It allows an eighth bit for a method of error-checking called "parity testing" in the byte on which operations are performed within a digital computer. But Ascii adds one start bit plus either one or two stop bits to the byte used in asynchronous data communications. Therefore it has become standard to reckon a data communications byte, representing one character, as 10 bits.

In this context a 300 bit/sec data transmission would be equivalent to 30 char/sec and 1200 bit/sec would equal 120 char/sec. It is not always correct to consider bit/sec a synonym for "baud", a common unit of transmission speed, originated by telegraphers, that has crept into computer marketing literature. It is wise to stay with bit/sec in thinking about data communications speed.

In 1983, few microcomputers can be configured for communications faster than 1200 bit/sec, but speeds as fast as 9600 bit/sec should be available and affordable in the mid-1980s. Heavy data communications users can more easily justify spending nearly as much on the necessary communications gear as their processing unit if the gear allows many times more data to be transmitted per connect-hour.

Lately, a few products have appeared that allow certain micros to have synchronous links. An example is the Australian-made Netcomm card for Apple II computers, allowing synchronous links with remote IBM host mainframes. In general, synchronous modems and other synchronous communications equipment is more expensive than asynchronous counterparts.

Data can be transmitted in simplex, half-duplex or full-duplex modes, depending on the equipment and intermediary facilities involved. In simplex mode, data can only ever flow in one direction. It is not used in conventional data networks. Half-duplex mode is characterised by data flowing first in one direction, then in another, but never in two directions simultaneously. Full-duplex mode allows data to simultaneously flow in both directions between

Heavy data communications users can more easily justify spending about as much on communications gear as their processing unit if it allows more data to be transmitted per connect hour.

communicating devices. A number of popular microcomputer models can now be configured so that the user can easily select between half- and full-duplex operation.

Besides a modem, a micro usually needs a communications controller card and communications software (generally on a floppy diskette) for data communications. The controller card is commonly offered as an option by the computer's manufacturer, but also may be obtained from independent companies. This card plugs directly into an expansion slot of the computer's processor unit. A cable runs from it to the modem. In some cases, the cable must be customised to the controller/modem combination.

The user's modem may be connected to the telephone network by inserting a telephone handset into special cups of a kind of modem known as the acoustic coupler, which then converts digital signals generated by the computer into acoustic tones carried by the common carrier as if they were speech. Modems which allow direct-connection to the telephone jack, circumventing any involvement with a telephone instrument, are more expensive but have the advantage of being less susceptible to noise, transmission errors and accidental disconnections.

Because Telecom rigidly adheres to a set of standards for plugging devices into the telephone network, most communications devices from other countries either will not work or can only be made to work through modifications. Telecom may or may not allow. According to law, Telecom must authorise the user to plug any device into an Australian telephone jack.

The basic purpose of communications software is allowing the user to prepare data files (which have until then resided in mass storage) for transmission across the data communications link, or for

merging with incoming data. Communications software may also allow the user to dial up the target device at the other end of the link by using the computer's keyboard.

Files created under some popular word processing packages cannot be rendered into a form that can be transmitted across data communications links. Users who would like to transmit word processing files should acquire a package that allows such files to be converted into data files of the computer's operating system and manipulated by communications software.

The very notion of telecommunications implies linked devices have some degree of compatibility, so it is reasonable that international standardisation of "protocols" and "interfaces" is a process with important ramifications for users and manufacturers. Protocols are sets of guidelines for implementing operating procedures covering the various stages in moving data from the sender to the receiver. Interface standards are basically designs for plugs.

These stages covered by protocols include moving data from the sender's terminal to the link between his building and the common carrier; moving the data across the common carrier's network; moving data from that network to the link between it and the receiver's building; moving data from that link to the computer at the receiver's disposal; and applying the data to the receiver's local database or running software.

A hierarchy of protocols covering much or all of the full process of moving data from sender to receiver is called a network architecture. Leading manufacturers of complete computer systems have described their respective network architectures as the umbrella for all future hardware and software products that might be involved in data communications. □

Market take off still awaited

By Tony Smith

DESPITE improved co-operation from Telecom, Australia's leading acoustic coupler supplier is still waiting for the local market to take off.

Electro-Medical Engineering Pty Ltd also fears that a deregulated Telecom could use the licensing data it has collected to identify coupler users and provide savage competition.

Electro-Med manufacturers Sendata acoustic couplers. It recently released a 1200 baud half duplex synchronous coupler to extend its 700 series range, and to particularly attack the IBM-compatible communications market.

Electro-Med sales manager, Robert Powell, said the company had hoped The Australian Beginning would provide the shining light for its business, but had transferred those hopes to the IBM Personal Computer.

Electro-Med's first contact with telecommunications regulations through the then Post Master General's Depart-

ment was with an acoustically coupled device which provided remote monitoring data for electrocardiograph diagnosis of heart conditions.

Powell claimed dealings with Telecom had never become a battle, but conceded that in the early days particularly it took considerable time to get Telecom to make changes in its regulations necessary to permit connection of novel equipment.

Electro-Med had identified the need to get both technical and policy approval for its products and discovered a way of speeding up that process by not waiting for technical approval before seeking policy approval.

It won approval for the 700 series in just six weeks, although it had expected from previous experience to wait six months.

Electro-Med has five models which are the base of the 57 varieties needed to meet the different regulatory requirements of its various export markets.

Powell rated Australia on a par with the UK, behind only the US, in the level of

accommodation provided for independent products.

He said France was the only country in which Electro-Med had failed to obtain approval for its products.

Electro-Med produces couplers labelled with its own Sendata brand and also packages them under the brand names of other equipment manufacturers, including West German giant Siemens.

Australian users of couplers (and any other device attached to the public switched network) must fill in permit application forms. They must outline what the device is required for... information which would be used by Telecom's marketing division to help it promote competitive products.

Electro-Med also has developed auto-answer and auto-dial direct connect equipment. But the project was scheduled because of the possibility it could be used for unsolicited connections.

Such equipment is available in the US, but Electro-Med expects it to be a year to 18 months before the Australian market is ready for it. □

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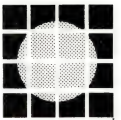
MODEL	1550	DP9500A DP9501A	DP9620A	DP9625A	WP3000	WP6000	NEC 3500	NEC 7700
Technology	Dot Matrix	Dot Matrix	Dot Matrix	Dot Matrix	Dot Matrix	Dot Matrix	Thimble	Thimble
Max Speed CPS (Draft)	120	150	200	200	180	275	—	—
Max Speed (Correspondence)	—	—	100	100	—	205	—	—
Max Speed (Letter Quality)	—	—	—	50	100	150	35	55
Proportional Spacing	Yes	No	No	Yes	Yes	Yes	Yes	Yes
Tractors	Std.	Std.	Std.	Std.	Std.	Opt.	Opt.	Opt.
Friction	Std.	—	—	—	Opt.	Std.	Std.	Std.
Auto Sheet Feed	—	—	—	—	Opt.	Opt.	Opt.	Opt.
Graphics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Word Processing Emulation	—	—	—	—	Yes (Qume)	Yes (Diablo)	Yes (either)	Yes (either)
Font down load (in line)	—	—	—	Opt.	Yes	Yes	—	—
Rec. Retail Price (ex. tax)	\$1175	\$2409	\$2563	\$2805	\$3180	\$4950	\$2251	\$2880



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Micro/mainframe connections present comms problems

A big disappointment for DP users is that there is no generalised solution to linking micros to mainframes. It is not the light-hearted exercise some salesmen suggest.

By Dennis Keyes

SUPPOSE you're a DP manager or an executive in a medium to large organisation and you see an opportunity for using a software package that runs on a microcomputer (for example, a spread sheet program like Visicalc to assist with budgeting, or a graphics package to enhance the presentation of board reports).

Now you realise that it would assist your case for purchase if the proposed micro could talk to your corporate mainframe or mini. This approach would enable you to access financial data on the trigger system (and so save rekeying) or to act as a terminal for your own data input and to receive co-ordinated assistance from the central DP support group.

You're also aware from your reading that all the micros advertised support one standard or more to enable you to make the connection desired, but you begin to wonder what idiosyncracies your anticipated hookup might have; just how easy it is; and just where you might go for assistance.

You may be discouraged to find, therefore, that there are currently no general solutions available; still much

work to be done; and that each success to date has involved programming of hardware and applications software to achieve a desirable result.

Dr Vance Gledhill, manager of product support for Wicat Computer of Australia Pty Ltd, who established such micro to mainframe connections while head of Computing Sciences at the NSW Institute of Technology, says: "There is still much confusion in the DP industry on this point. Most work being done is aimed at connecting specific pieces of equipment from the same manufacturer. A general solution is many years off. It is not the light-hearted exercise that many salesmen suggest."

The main reason for this is that solutions to this problem involve two components—hardware and software, and while much standardisation has been achieved in the hardware sphere the applications software area has been largely ignored. This latter segment is needed to provide the 'friendly' interface to the non-technical user to free him from the need to remember cryptic commands or be aware of complex file structures.

But printed circuit boards are now available in Australia to enable micros to communicate with standard protocols to a range of mainframes or to act as a member of a terminal cluster.

According to Paul Thomas, communications products manager at Wicat: "It's very like placing an ISD telephone link with a person in Europe, with all the

crossbars and electronic aids at your disposal to establish the connection and then finding that the callee can't speak English. You will need a dictionary to even conduct a halting (and expensive) conversation."

Even if you can't cost-justify the setup of such a user friendly link as yet, you can still ensure that your intended micro supports the basic connections and protocols enabling you to implement the probable general solutions as they become available.

One important factor for consideration is whether the micro to mainframe connection is direct or via a network. The direct connection can be via a permanent attachment (just like a dedicated terminal) or via the telephone lines (leased or dialup).

A network connection could be through a multinode corporate system, or more appropriate to the theme of this article, through a local area setup. The local area networks (LAN) will probably be established ahead of the general solution mentioned above and are thus likely to be a step in the achievement of this end result.

In these systems, different pieces of equipment can be strung out as separate connections on the same 'wire' and each share the same printer and disk. A separate processor acts as a controller to allocate this resource sharing. In this case, a mainframe would simply be

(Continued next page)

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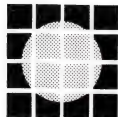
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Micro/mainframe

(Continued from previous page)

another connection on the line with data moving to and fro on the network.

The most basic factor in any systems connection is the physical interface (how the plugs and sockets are wired to the interconnecting pins). It is absolutely essential that your micro and mainframe both have a serial I/O port wired to RS232C or V.24 standard. The next most important factor in the micro to mainframe link is the protocol or set of rules governing the communicating.

This governs such things as agreement on where the high and low order bits are and the extent of parity and error detection. They are available in varying degrees of complexity and sophistication. The most basic (and absolutely essential) is asynchronous Ascii followed by synchronous (IBM 2780/3780 protocols) with its greater error detection, IBM 3270 protocol for controlling clusters of terminals (i.e. micros), and finally the sophisticated networking protocols X.25 (of CCITT) and System Network Architecture (of IBM).

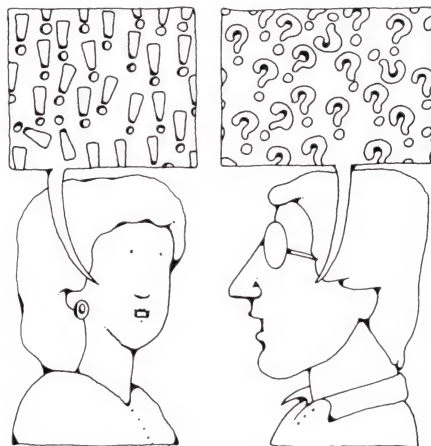
The last two enable intercomputer communication, using a data network and/or packet switching. They have higher overheads in hardware and software usage (and hence higher development cost for a specific solution) and it is unlikely that such sophistication would be required for the majority of micro to mainframe links.

If, on the other hand, you are using the link to gain access to financial data for a broadsheet program then error detection is vital since corruption to the transmitted figures will make your reports and budgeting invalid. For this type of activity, synchronous communication would be required. The synchronous protocol sends data in blocks with parity checks on each character and also on the entire block.

Most micros do not support synchronous communication as a standard offering however, and so there will be hardware and/or software modifications needed.

For transmission of text information (for example WP applications or office message sending) — the raw protocol of asynchronous Ascii would be sufficient. Here, each character is accompanied by start and stop bits but there can be corruption in the character sent. The redundancy in the text itself, however, enables a correct interpretation to be made by the reader in most cases.

Finally, when using a micro as one of a group of standard data entry terminals, a cluster control protocol (for example 3270) would be required. This would not solve the problem of user friendly access to corporate master files, but would enable direct data entry as per a standard terminal (being an IBM standard).



Another important factor in the connection of micros and mainframes is the speed of data transfer. For connections using the switched telephone network (the most usual for occasional access) your micro must be capable of transmitting at 300 bit/sec (for asynchronous connection) and/or 1200 bit/sec (for synchronous). If you will be using a leased line or direct connect to your mainframe, speeds of 2400, 4800 and 9600 bit/sec are common.

If a direct connect (or even LAN approach) is being considered, then the cabling becomes more important. You then must consider the cabling length (errors increase with distance, strength decreases), the amount of shielding (coaxial better than a two wire pair) and where the cabling will actually run. Again, Paul Thomas says: "Running a cable up through the wall and past strip lighting in the ceiling can interfere with the noise immunity of any unprotected cable."

And finally, the area most vital to a short term solution is the one currently most lacking — the applications software to drive the connection and make it easy for the non-technical person to use.

You will need such software at both ends of the micro mainframe hookup in order to translate free format, user friendly requests into formatted commands or file structures.

Your greatest chance of achieving

this in the short term is to go with the equipment vendors who are supporting their own micros — for example, IBM, DEC, HP and so on — if your corporate system is of the same type.

Burns Philp and Co Ltd is an organisation which has taken some steps to linking micros with its central computer. According to Graham Dullow, the group DP manager, and John Devins, the systems programmer, the approach has been hardware oriented. It involved engineering assistance (for example programming of ROMs) and the implementation required experienced people at each end of the link. They are now evaluating the feasibility of a live regular hookup for broadsheet application. They connected an Apple and a DEC VT180 to their Prime and even linked the Apple to another micro, the AWA Micro-max 3000.

This latter exercise was done for file transfer and used 2780 synchronous protocol (needing an operator at each end).

The DEC VT180 was used to emulate a standard Prime PT25 terminal. In this approach, they logged onto the Prime, loaded the editor, and with this software in input mode, fed data in from the VT180. They thus avoided any complications with the operating system on the DEC micro.

They consider that the Apple approach is more hardware oriented than the DEC, but that neither could be described as a user friendly answer.

So, it's likely that in the near future we will see mainframe to micro connections being developed inhouse by companies having the depth of expertise required and the extent of their need justifying the costs of these one-off developments (for example Westpac and Myer). Occasionally a specific solution will be implemented for reasons other than cost justification and this will spread the awareness and generate more need.

Meanwhile the all-purpose general solution will at least have to await agreement by major parties on the implementation of standards put forward by an international group (like ISO).

In the interim, ensure that your system has the capabilities described herein so that you can be ready to use developments as they are presented.

• *Dennis Keyes is principal of Dennis Keyes and Associates, an independent consultancy.*



Jonathon Holgate talks on terminal emulation

Terminal emulation is an important issue for microcomputer users who want to talk to large computers. The subject is discussed widely by computer users but is really the preserve of people with specialised programming skills.

By Ian Webster

JONATHON Holgate, who has been involved in the emulation of terminals and printers for the past five years with MicroPro Design, talks to Australian Micro about terminal emulation.

Micro: What is terminal emulation?

Holgate: I think there are two parts to consider. First, the terminal which can usually just be considered a device which communicates via a link to a computer. It should be remembered that this device can be very dumb, like a card reader or punch. The communication is usually simple in the sense that it is obvious who has control of the link at any time. Emulation is the matching of the functions of two different devices. This is usually an approximation.

Micro: How do you design a terminal emulation?

Holgate: Emulation proceeds by iteration. Usually you have brand X and brand Y and work from a specification to turn X into a functional equivalent of Y. You get closer and closer.

Micro: What problems do you encounter when designing an emulation terminal?

Holgate: The big problem is the specification. Emulation requires exact specification which is often not available, even from the terminal manufacturers or computer companies. I have also found that DP people have a fairly vague understanding of what goes on at the byte level inside their terminals. It's very hard to get customers to produce an exact specification of what they want emulated as they often assume that it is self evident.

Micro: What about the mainframe end of the link?

Holgate: Yes, I have been surprised at the implementation of some standard protocols, particularly on minis. It's often necessary to explore the operation of a

protocol implementation as you can never be sure what will happen until it has been verified.

Micro: How important are hardware differences?

Holgate: Hardware differences are the basis for the compromises in terminal emulation design. For example, one of the Televideo terminals has eight character attributes for display on the screen. If you try and emulate that without suitable hardware it's just impossible. Once a specification has been prepared it is the hardware compatibility that determines the approach.

Micro: What do you think about the current generation of 16-bit personal computers?

Holgate: I have been looking at the IBM-PC and the Sirius and they both look good. The important points are complete control of the screen, the serial port and the keyboard. If you have that then it can be easy to emulate. One of the big problems with older micros was the lack of keys on the keyboard and trying to emulate a full terminal keyboard on a small micro keyboard is very difficult.

Micro: Do microcomputers impose any insoluble problems for a terminal emulation?

Holgate: It's getting easier and most problems can be solved. The keyboard problems has implications for the quality of the implementation and sometimes there can be speed problems if the processor gets tied up some where.

Micro: What sort of attitudes to users have to terminal emulation?

Holgate: The big problem is the cost of emulation and software services. Users tend to think that it should be very easy and not cost, particularly as the terminal might only cost \$A1000. I think this is part of a widespread attitude about software, that it shouldn't cost as much as it does because you can't see the effort.

Micro: What has been the effect of microcomputers on users expectations?

Holgate: They have had an effect. Usually people who have a micro see it as another screen and keyboard and so want it to emulate their other terminals. Other users see that by spending

an extra \$A700 they can get a micro rather than a terminal, so prefer that approach. It becomes a question of cost and the problems of equipping DP installations.

Micro: How much demand is there for intelligent terminal emulation?

Holgate: I have found little demand. Most mainframes do not have the software to have people sending files up and down to the system. Some people use them for the Australian Beginning but little else.

Micro: What do you think about modems?

Holgate: I think that direct connection is necessary. There is no point in having a chain of devices between you and the line. Built in modems with direct connection and preferably 1200 baud operation is the way to go.

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The finest? Well, as near to it as can be

By Martin Gorfinkel

THE documentation for Ascii Express, The Professional begins: "You have just purchased absolutely THE finest terminal package ever written for the Apple II computer.

Ego? No. Fact? Yes..."

The claim may be true. The package has more options and abilities than any other package I've seen. Once the options are set for an application, the program is easy to use.

Ascii Express allows you to use your Apple II as a terminal on a remote (or local) "large" computer. You can also communicate with other microprocessor systems. The information to be transmitted can come from the keyboard (you type it) or from a file on the disk of your Apple. Data transmitted to your Apple can be stored in memory and written to a file on the Apple disk.

An editor is included to allow you to use the package to edit data in the memory buffer and/or to build a file for transmission or storage on the Apple disk.

Southwestern Data Systems claims Ascii express works with any Apple-compatible hardware. For this review I tested it with the Apple Super Serial Card and the California Computer Systems 7710 Serial Interface at transmission speeds up to 1200 baud.

Features: The package consists of two major programs. The first is the installation program, which "describes" the hardware configuration of your Apple system. You specify whether an 80-column card is to be used, which slot contains that card, which communications card is used, what slot it's in and so on.

The installation program is menu-driven. It is called automatically the first time the package is run. You can call it after that to change parameters.

The second program is Ascii Express Pro, which handles file editing and communication. This program allows your Apple Plus to act as a terminal to a remote system.

In addition to the usual functions of a terminal, the Ascii Express Pro allows

you to capture in a disk file on your Apple all information flowing between your computer and the host; use an Apple disk file (rather than keyboard input) as the source of information to be transmitted to the host; and edit and view files on the Apple disk.

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	Poor	Fair	Good	Excellent
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Ease of Use	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Performance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Documentation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Serviceability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

System Requirements

- Apple II, II Plus or IIe
- Apple DOS
- 48K RAM
- One disk
- One serial interface card (minimum)

Price: \$129.95

Distributed by
Imagineering
3/579 Harris St
Ultimo, NSW 2007
Tel: (02) 212 1411

The system is compatible with a variety of serial interface cards available for the Apple. The communication options are general enough to allow communications with a variety of host computers, other microprocessors, and standalone wordprocessing systems.

A special protocol is available for communicating files between two microprocessor systems using Ascii Express packages;

Performance: The package performs well. The program code fits into a minimal amount of space on the Apple, leaving a maximum amount for the data to be transferred and/or stored.

A useful terminal-emulation program should allow you to communicate with many other systems and should allow you to capture all data communicated. Ascii Express does that.

The documentation claims that this package is "THE finest..." which, in my view, is an untestable assertion. This is, however, the best communications or terminal-emulation program I have used.

Ease of use: When the installation program has set up the parameters properly, it is easy to get the program running.

Initial program installation is more complicated than necessary. It would be convenient if the authors provided a copy routine to make backup disks for the package. That routine could be menu-driven and allow you to select only those files that you need.

Error handling: There is a fine line between errors and enhancement requests.

When the copy buffer became full during the process of getting a listing from a remote mainframe computer, the program provided a message and turned off the copy-buffer flag. Since the listing continued, the message rolled off the screen. There was no visible indication that data was no longer being captured.

There should be some means of sneding a character or string of characters when the buffer is almost full. This would allow you to stop a listing and copy the buffer to the Apple disk without losing data.

Documentation: The documentation is not convenient.

A separate section of the documentation dealing with possible errors and problems would be helpful.

Summary: Ascii Express is good. Except for the negative aspects of the documentation. I can highly recommend this package.



Outvoted for Canberra but he's polling well in data retrieval

By Paul Rigby

AS Bob Hawke took over in Canberra, a young would-be MP took delivery of an Adler micro system which will help his business of retrieving and sending out information worldwide.

James Harker-Mortlock, unsuccessful Liberal candidate for Parramatta in the Federal election, considers himself fortunate that politics is not the only arrow in his quiver.

Harker-Mortlock is a pioneer in an area of business which is quietly taking off.

As a politician he was outvoted, but as one of Australia's few information retrieval specialists, he seems to be polling very well.

'A great amount can be reached, but the art is to find the information best suited to the client's needs.'

Harker, who runs Harkers bookshop in Glebe, Sydney, says that being an information broker "adds a new dimension to traditional bookselling."

He said there were at least 500 databases held on computer of publicly-accessible information worldwide "with no less than a billion references to different articles, reports, and so on."

On behalf of his clients, Harker accesses databases in Western Europe and the US, through the Midas message-switching network or by direct dial-up link.

"There is a great amount of information that can be reached. The art is to find the information best suited to the client's needs," he said. "It's only too easy to become overloaded with information. You must learn to clearly define your topic."

Access to the overseas information banks is achieved via an STC 43 terminal.

The access could be made through a micro system with a program to handle the communications protocols by emulating a teleprinter. Harker actually intends to continue use of the STC terminal because it is so portable.

He explained: "We can carry out a

search on the customer's premises. The advantage is that if we are working together, the search is often better tailored to his requirements. Searching is an interactive process and if the customer is there, you can manoeuvre the search to his needs. You're also near his research base and all the information to construct the search is at hand."

The Adler Alphantronic model P2 micro, with visual display and dot matrix printer, will be used for word processing, accounts receivable and payable, stock control for books and invoicing of Harker's text books and the information service.

The Alphantronic will hold a mailing list of customer names. The intention is to send out a periodical newsletter informing clients of new database files available. "Oh yes," Harker said, "in this business you get information about information. Far from cutting down on paper, it's exploded."

He's right. Harker's information retrieval service is located above the bookshop in a modest room containing heaps of papers. The STC teleprinter is placed on a desk, above which are more than two dozen thick manuals. These give reference to the contents of several information databanks.

What sort of information is stored in these electronic repositories — and who needs it?

Harker said the information was specialised and would be required by clients in business and technical fields. Company reports, names of industry associations, even lists of real estate agents could be found.

To Harker, the databank concept is a natural extension of the role of a specialist bookseller. He pointed out that being an information broker also assisted his bookshop in the matter of obtaining new titles from overseas. Through the "electronic mail" provided by the communications networks serving the databanks, orders for foreign books could be placed and filled much quicker than usual.

"For example, we required a book from Massachusetts and we got it in Sydney five days later."

It obviously takes a certain kind of person to be an information broker. Harker enjoys the clean, "hi-tech" at-

mosphere of intercontinental information retrieval.

"It's intellectually stimulating work. And the data is all online, all clear, objective and efficient."

His interest in information was fired as a university student "who could never get the books I wanted."

Later he worked in the Angus & Robertson marketing division, and then started a specialist information ordering service from his home unit in Waverton.

In 1980, Harker heard about the Midas message-switching data service introduced by OTC and learned of the overseas databanks available to Midas users. So he purchased a teleprinter and "started finding out about them — as well as discovering others."

He continued: "A number of the information banks had a facility for ordering materials. We became suppliers. Customers of several US and Western European databanks can order Australian material online through us."

One of Harker's more notable orders of this kind was from Bell Telephone. Other customers include Australians. Harker said that Australian users of the databanks were increasing.

'It's intellectually stimulating and the data is all online, all clear, objective and efficient.'

"They are mainly technical libraries and medium to large companies, but also an increasing number of individuals using micros with communications software," he said.

Is information brokerage a money-spinner? Harker was cautiously optimistic. "It's financially worthwhile — the systems are pay-as-you-use and most of my start-up costs have come and gone. But you wouldn't want to rely on it; rather, it's a useful addition to an otherwise established business," he said.

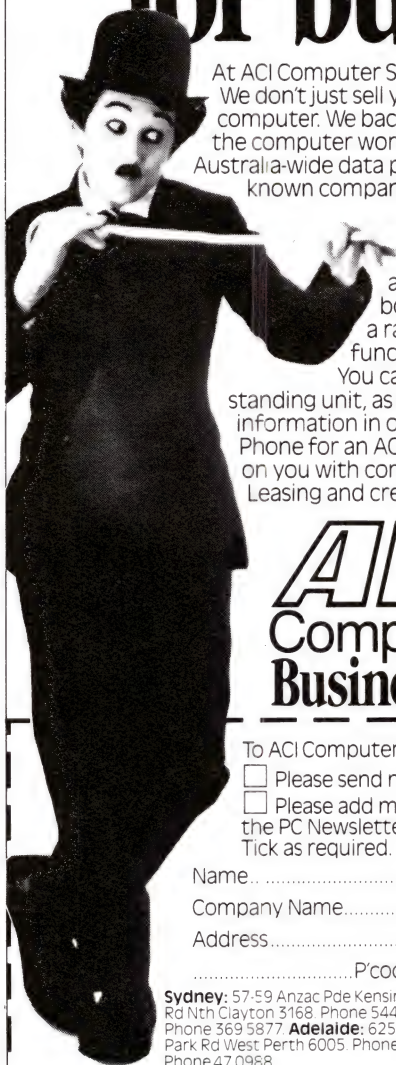
However, he admitted that use of the information service was increasing as people found out about it, and competitors were few.

"I am the only person in Australia who provides commercial bookselling and document delivery," he claimed.

(Continued page 40)

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ACI 005/M



Harker's shop in Glebe, Sydney.

(Continued from previous page)

It is certainly a business of the future, being part of the huge information industry — the US's fastest-growing industrial sector as Harker pointed out.

Being a pioneer, however, has its disadvantages. Information brokerage is hardly a well-known career.

"You have to be quite patient with people," said Harker, a young man in a hurry to whom patience cannot be an easy accomplishment. "You begin by educating them as to what is available, before you can entice them to use it.

"The cost seems prohibitive, but when they see the quality of the results and compare it with the time that they would have spent in the past — to obtain only mediocre results — they realise it's worthwhile.

"We can do in hours what would have taken weeks in the past."

Some people didn't understand what the information service was — he had received calls requesting, for instance, the location of the nearest post office!

Others had expressed the view that gaining access to information was a right and they shouldn't have to pay for it. Again, he said, this was a question of education — to show that the retrieval system, including the equipment and expertise involved, had to be paid for.

And what of the social effects of information broking?

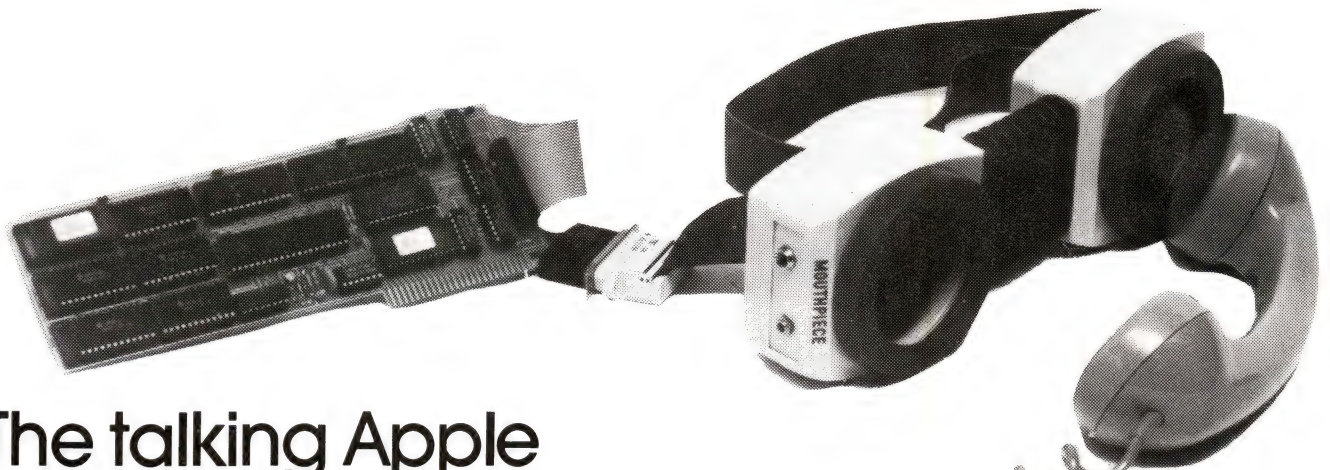
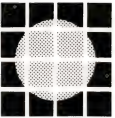
It was a research facility, providing very fast response, that previously had not been possible and therefore did not threaten jobs so much as create them.

"It does work that just couldn't be done before — therefore there's no-one who could be laid off as a result of using the service," Harker said.

Last but not least, being an information retrieval specialist was a very satisfying job, said Harker-Mortlock.

"When you finally come up with that particular article published in 1958, you feel you are providing people with genuine assistance in their work."

Harker's Information Retrieval Systems is at 74 Glebe Point Rd, Glebe, NSW 2037. Telephone: (02) 692 9558. ☐



The talking Apple

ELECTRONICS Concepts managing director, Rudi Hoess, has pursued the development of the Apple II as a communicating microcomputer. His efforts have encouraged the Australian development of a communications card that has solved many of the problems involved in linking Apple microcomputers to mainframes.

The Netcomm is a communications package that enables an Apple to talk to mainframe computers. The package is based on a communications card and emulation software. The card uses a RS-232C interface to connect with an acoustic coupler or external modem.

The card is intelligent, based around a Z80A microprocessor to free the Apple microprocessor from having to manage the communications protocol. The card can support multiple buffers and most serial protocols including asynchronous and synchronous protocols such as IBM Bisync, HDLC and SCLC. Protocol software can be loaded from disk as required. At present 3270 emulation software is available and software for 2780 batch and 3780 printer applications is expected soon.

The intelligence on the card allows

the Apple to support file transfers to disk and printer while the Netcomm card maintains the communications link.

The card is manufactured in California by Elcom System Peripherals, a company owned by Hoess. Australian retail price of the Netcomm package is \$A670.

Further development will include an auto dial/auto answer modem card, under development at Elcom's factory in Newcastle which will turn the Apple into a complete terminal allowing unattended telecommunications.

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When you get behind the keyboard of the IBM Personal Computer, hold on to your hat.

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Despite the sniggers the Beginning is booming

By Tony Smith

AS AN independent contractor to GCS-Teledata Pty Ltd in 1981, I was responsible for the functional and technical specification of the Australian Beginning bureau computer system.

But the arrangement finished a few days before the original bureau computer came online and before coding started.

Being curious as to how it all turned out I finally got my hands on the system after interviewing the founder and managing director of The Australian Beginning Pty Ltd, Gary Alpert, for this issue.

When originally asked to be involved in what was then known as The Australian Source, it was really just a concept in Alpert's mind, for which he had spent the best part of a year setting up information sources and, in particular, distribution channels.

Five basic services had been described briefly in a publicity brochure — information banks, electronic mail, shop at home, software banks and mainframe power.

These had to be expanded into a formal specification of a dial-up bureau system to run on a Data General Eclipse under DG's Advanced Operating System (AOS) and indexed file management system (INFOS).

The source for that detail, apart from an occasional reference to a couple of then existing US systems, was the minds of those who made up what became a project team — Alpert, some GCS-Teledata and seconded Computer Country staff — and myself.

A quick hands-on with Beginning in 1983 quickly illustrated that the main thrust of what was defined in 1981 has survived.

The mixture of single word commands, tree-structured menu choices and full text screens has survived, like it or not.

One major area which was far from complete when I left and which has obviously been given considerable attention is Beginning's very detailed error reporting.

But it is the electronic mail function which has evolved the most albeit subject to the whims of bureaucracy as it was from the start. Mainframe power is likely to get closer to our original dreams whenever the long anticipated upgrade to 32-bit processing goes ahead.

With a number of practical lessons behind him, Alpert is now working on a number of new features, primarily targeted at the business market which has emerged as the most productive in the short term.

While some critics may snigger at the growth of Beginning being well below the multiple MV-8000s which were once wishfully predicted as being needed during 1982, the fact that it is still there and growing, despite having to overcome one or two massive hurdles, proves the validity of Alpert's original concept.

It is just about the greatest shame of the Australian micro industry that any criticism of Beginning has been confined to personalities and corporate wheeling and dealing, with scarcely a mention of the performance of the service itself.

Valid criticisms of Beginning could be applied to most of the Australian micro industry; unrealistically early expectations of volume markets and of user sophistication, and underestimation of the work necessary to put a completed computer product in the field.

One feature of newer data banks which Beginning will have to look at is keyword searching, although this is quite costly to implement.

While the trend of public data banks is to move upmarket with more sophisticated facilities and more expensive information, Beginning is likely to remain the only general purpose data bank seriously targeted at private micro users.

However, increasingly cheap RAM must eventually provide an opportunity for the implementation of a public data bank costing the operator less than \$A1 per user connect hour to run, particularly when the problems of bypassing operating system timesharing overheads and sufficient start-up capital are overcome. □



Alpert the optimist

By Tony Smith

FOUNDER and managing director of The Australian Beginning Pty Ltd, Gary Alpert has expressed considerable optimism about the prospects of Beginning.

Beginning switched its bureau system from GCS-Teledata Pty Ltd's South Melbourne premises to its own attractive offices in Camberwell Rd, Victoria, in December.

The system had been running on a Data General Eclipse operated by GCS-T since its launch.

Beginning's replacement Eclipse at the new premises was intended to be an interim measure pending the supply of a Data General 32-bit MV-8000, after which the smaller machine was expected to be retained as back up.

The move from South Melbourne to Camberwell was achieved within four weeks of taking the lease on the new premises.

An official opening of the premises were postponed after unfavorable publicity, but a launching is being planned.

Alpert claimed Beginning was capable of becoming the major non-US information network because it was the only one oriented to small networks and to building new networks.

A New Zealand licensee was expected to be operational in Auckland in three months on its own resident system which would be linked to the Australian system by daily batch updates.

Beginning also was looking to sales in South Africa and South-East Asia as steps towards a network of networks.

Alpert's time was split 50-50 last year between Beginning and his retail shop, Computer Country Pty Ltd, but the ratio is now around 75-25, with the Computer Country share expected to continue to diminish.

He admitted Computer Country had a rough and tumble image, but claimed it had become very separate from Beginning over the past 12 months.

Additional investors had been taken into Beginning.

The industry was maturing, the people in it maturing and the rough edges coming off.

Entry to the industry was becoming harder.

Computers were the fastest growing industry, micros the fastest growing

segment, and communications the fastest growing application — a combination which put Beginning right in the fastest growth area, Alpert said.

A succession of announcements of expanded and additional products on Beginning was expected in coming months, with particular emphasis on business systems.

Alpert stressed that Beginning was an Australian owned company with Australian designed and developed products.

He agreed with former Victorian Economic Development minister, Bill Landeryou, that Australia should not be seen as providing only sales and service for imported computer products.

Alpert said he believed in strict secrecy on new products, preferring to tell too little than to lose a competitive edge, although he had been chastised for this.

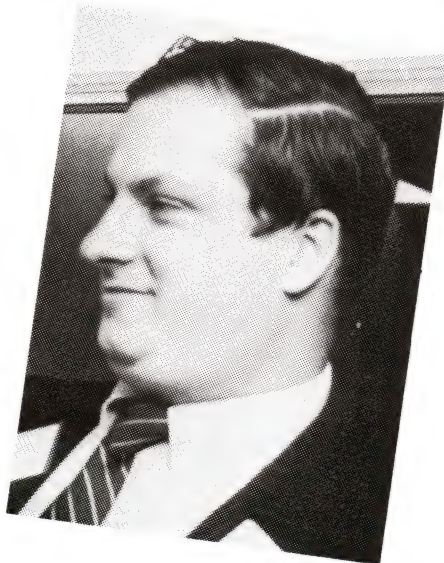
He said Beginning had been consolidating for the best part of a year and was ready to step up to the next plateau, especially with the new business facilities.

It had its own strong development team, with a total of 19 people employed between Beginning and Computer Country.

Data General had been immensely helpful in every way possible.

Alpert visited Data General in the US and obtained its support for Beginning's move into other markets.

Alpert said Data General's emphasis had been on networking with a number of products in the office automation area in particular. In Australia, Beginning was DG's only direct contact with the growth of the micro industry. □



The Case of the Plummeting Stockbroker

It had been a most difficult and exasperating week for Sherlock Holmes and myself. Moriarty, that arch fiend and master of disguise had, once more, given us the slip at Victoria Station disguised as an itinerant garlic salesman.

The clock chimed four, and Mrs. Hudson entered with the tea tray, as regular as a dog on Meaty Muesli Bites.

"I am inclined to think..." I began.

"I should do so," Holmes remarked impatiently.

"Really Holmes," said I severely, "you are a little trying at times." It was then that I noticed a man on the window ledge of the building opposite.

"Holmes!" I cried, "there's a..."

"Man on the window ledge opposite," drawled Holmes, his back to the window, his head in the clouds.

"Yes! And I do believe he is planning to..."

"Jump from it," added Holmes, laconically. "I shouldn't worry Watson, it's only Sir Fotheringay Granite-Smith."

"What? Not Granite-Smith the stockbroker and futures broker?"

"The same."

"And why, pray, is he planning to curtail his own future in such a drastic and ostentatious manner?" I enquired, rather pleased at my pun.

"It is a matter of futures that has driven him to the edge of his existence.

Two lumps, if you will Mrs. Hudson."



"Very good sir. One biscuit, Mr. Holmes?"

"Stir yourself, man! The very least we can do is save him! Explain yourself!"

"I mean that Granite-Smith's precarious position has been precipitated by a paucity of precise printed matter. An iced vo vo, thank you Mrs. Hudson."

"Preposterous!"

"Perhaps. Granite-Smith has been dabbling, of late, in Patagonian peanut futures, in fact, he has sunk his whole fortune into the promise of a bumper ground nut crop. Late last night a telex arrived informing him of the impending failure of the crop. He never received it. The telex operator, a charming if scatter-brained lass, left the telex in the ladies room en route to his desk. A pity. A disaster that could so easily have been diverted."

"Thank you Mrs. Hudson," I sipped at my tea. "Pray continue Holmes, and supply the solution to Granite-Smith's predicament... Good Lord! He's moving towards the edge!"

"A CASE TLX unit. A simple and remarkably inexpensive device that

turns any word processor, computer or terminal into a telex station. The TLX means that any system with an asynchronous interface is able to send and receive telex messages. With a CASE TLX unit connected to his desk top terminal, Granite-Smith would have received the full story of the failure of the Patagonian peanut crop in time for him to divert his funds, also by telex, to some more lucrative venture."

"Count Moriarty's Madagascan Mangoes, perhaps," I suggested.

"An excellent return," Holmes added mournfully.

"Good Lord! There he goes Holmes, Granite-Smith is plunging pavementwards!"

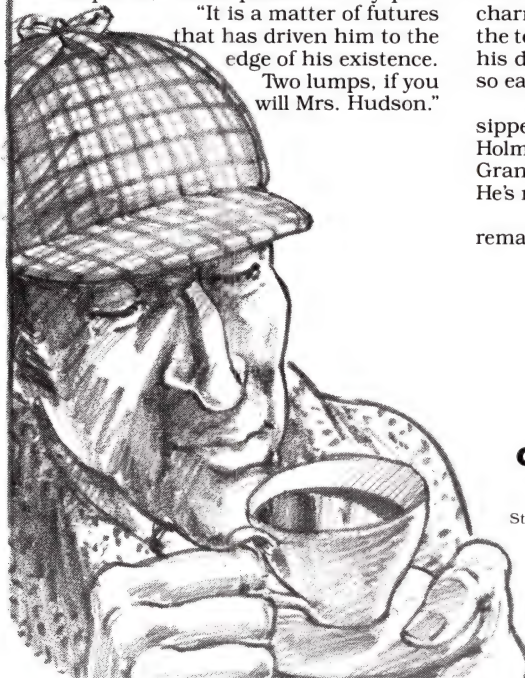
"Fear not, dear Watson. I have taken the precaution of parking a large carriage containing several feather down mattresses in a position calculated to break his fall. Another iced vo vo if you please, Mrs. Hudson."

"Certainly Mr. Holmes sir. Dr. Watson, would you care for... wherever can he have gone?"

"Dr Watson has gone to inform Granite-Smith about the CASE TLX Unit, I imagine. And a good thing too. We can't have stockbrokers splattered all over the pavements of Baker Street, Mrs. Hudson, can we?"

"Certainly not, sir.

It would frighten the horses."



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Versatile Tasnet learns to change with the times

By John Morse

THE Tasmanian Education Department supports Tasnet, a state-wide network of six Digital CPUs and 250 plus terminals connected through Telecom data lines. The terminals are in all high schools, secondary colleges and technical and further education (TAFE) institutions. Five of the CPUs are PDP-11s and one a VAX 11/780.

There are computer studies courses, data processing courses and computer awareness courses available in all these institutions. Tasmanian students have taken HSC matriculation computer courses since 1972. Tasmania's HSC and technical colleges each have from four to eight Tasnet terminals online.

There has been an explosion in the number of microcomputers and local area networks of microcomputers in primary and secondary schools in the past two years.

This article briefly traces the development of the Tasnet system and the advent of microcomputers before addressing the topic of communication between microcomputers and the network.

The network growth went as follows:

1973 one PDP 11/20
1974 one PDP 11/40
1976 one PDP 11/70
1978 second 11/70
1979 three 11/70s and two 11/34s
1980 Additional VAX 11/780

The 11/70s run RSTS/E operating system and the VAX 11/780 the VMS operating system. The current network communications software is Decnet. In the past 10 years the student users have benefitted because the development of software and the purchase of hardware has been a co-operative venture with administrative applications.

Approximately 200 terminals are for student use and the remainder for administrative roles. This represents a heavy load on the processors.

This network has allowed the choice from a number of reasonably structured

• John Morse is education officer at Elizabeth Computer Centre, Tasmania.

	Students	Admin	Idle or lost
HOBART			
PDP 11/70 A::	50	40	10
PDP 11/70 B::	50	40	10
VAX 11/780	0	90	10
LAUNCESTON			
PDP 11/70	80	10	10
BURNIE			
PDP 11/34	85	5	10
DEVONPORT			
PDP 11/34	85	5	10

Characteristic percentage time use of the CPUs.

The up-time has been in excess of 99 per cent in the prime time of 9am to 5pm on the three Hobart processors taken on average over the last six months.

Shared centralised disks, common line printers for high volume documents and magnetic tape units for backing up are three tangible advantages of being part of this network. No individual school could afford these facilities, but collectively and in conjunction with administration accounts they have access to powerful centralised facilities.



High school students have been taking computer courses in Tasmania since 1972.

languages for teaching programming. Centralised disk storage allows access to a range of program packages, data files and databases for both administration and for teaching.

Recurrent Telecom costs are one disadvantage. However, compared with other states, this is one case when small is beautiful for Tasmania.

A further noteworthy point is that back in 1972, microcomputers were not a

viable option for interactive computing. It was a case of network or nought!

But, as readers of this magazine know, microcomputers have arrived. The Tasmanian Education Department has established guidelines for microcomputers to allow floppy disk access, graphics and reasonably large software packages to be run. In the first instance, Apple II microcomputers were recommended for schools and colleges and now, also the BBC Microcomputer. The "education market" lies between cheaper home microcomputers and more advanced business microcomputers.

The department has committed resources to software development and hardware servicing for this limited number of operating systems and processors. While other equipment may be purchased for specific applications — particularly in the TAFE area — there is not the same degree of support available for them.

A number of schools in secondary/TAFE and primary areas are installing local area networks using Econets of BBC Microcomputers. Thus in the eighties, some of the advantages of Tasnet in the \$970s are becoming available to particular institutions.

But what about microcomputers talking to Tasnet? Is it possible? What does it cost? Is it desirable and is it useful?

Apple II has a standard RS/232 communications card. This card has an onboard terminal emulator ROM chip allowing the Apple to be used as a glass teletype. By using an acoustic coupler to a dial-up line or by plugging into a permanently leased line, the Apple functions as a Tasnet terminal with the limitations of Apple's 40 character width, lack of lower case and limited function keys.

RSTS/E has a systems file transfer program, peripheral interchange program, PIP. One of the department's enthusiastic Apple users, Walter Bartlett, has written software to allow file transfer in both directions between the Apple and the RSTS/E operating system on the PDP-11s. Walter's solution involves his program Apple PIP on the Apple II communicating with his program SEED on RSTS. Some of the control characters, such as control-C

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©C, carriage return ©N and end of file ©Z can cause unwanted effects when sent down the line as parts of standard ASCII files. To overcome this, Walter disguised all control characters with a ©A prefix. Thus ©C becomes ©A C and ©N becomes ©A N.

Apple PIP sends messages line by line to RSTS. Apple PIP interrupts RSTS, logs in to RSTS and activates the program SEED. SEED stores the present RSTS terminal characteristics for that line, receives a message from Apple PIP and sets the appropriate terminal characteristics for the Apple user. Apple PIP then requests the name of the file to be transferred, its source and its destination. The files may be data, lists or programs and are all transferred as standard ASCII files.

Files are sent from the Apple line by line with all troublesome embedded control characters masked by ©A as outlined above. In reverse, because the Apple has a limited buffer size, Walter's SEED program sends files from RSTS to the Apple memory in 256 byte buffer loads for handling from memory to disk. When each buffer is handled, the Apple sends a continuation handshake signal back to SEED. This pair of programs is fairly successful in handling a range of sensible error messages under appropriate conditions. If the connection is "lost" then SEED waits a respectable period of time and goes through an automatic logout procedure from RSTS. This logout routine includes the restoration of the original terminal characteristics to the RSTS line.

Walter's programs have been used consistently and regularly for two years or more. While they are not in high volume use they have stood the test of time.

The newer BBC Microcomputer uses standard RS 423 interface, allowing a wide range of communications speed. On Tasnet, financial constraints have limited most schools and colleges to terminal speeds of 300 or 1200 bps Telecom lines. The BBC, being interrupt driven, is more sophisticated than the Apple II. This allows for an easier and more standard protocol between the BBC and Tasnet. One present short-



Computer teaching is moving more and more towards computers.

coming is the lack of a terminal emulator ROM chip. One of the programmers at ECC, Peter Campbell, has written software to allow the BBC Microcomputer to act as a standard Tasnet terminal. Peter's present project, which should be completed as this goes to print, is a VT-100 emulator program to be resident on the BBC. By trapping communications protocol and escape sequences sent to the BBC from RSTS, the program implements the standard cursor movements of the VT-100 terminal.

It is possible, then, for the microcomputes to talk to Tasnet, but it occurs relatively infrequently. Tasnet terminals use Tasnet interactively taking advantage of system hardware and software while microcomputers take advantage of their localised processing, avoiding Telecom charges but putting up with limited resources in the present climate.

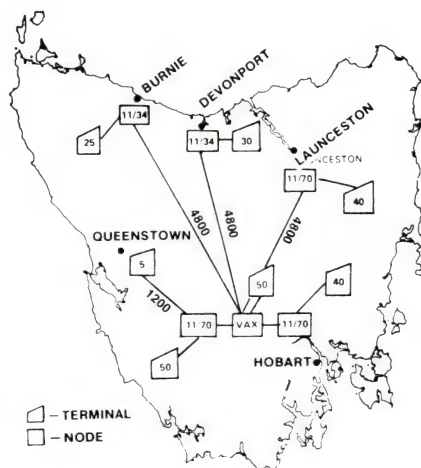
While all terminals connected to Tasnet are seen as a valuable resource by their users, there is a developing pattern for new terminals. Student users are moving towards either standalone BBC Microcomputers or towards several BBCs in an Econet local area network. However, administrators have an increasing call on the central network. This network is to be enhanced by the addition of increased office automation hardware and software in this financial year.

The colleges in both the TAFE area and the HSC area are likely to maintain one set of teaching Tasnet terminals plus a new set of Econet terminals allowing some comparison of larger and smaller systems within the teaching programs. High schools (up to grade 10 in Tasmania) have had relatively few Tasnet terminals, but are moving towards Econets as a teaching resource. Primary schools are similarly moving to standalone or networked BBCs.

The clear advantage of such a trend is that the teaching side is relying less on Telecom links and their reasonably heavy recurrent costs. The principal disadvantage is that HSC programming courses will have only limited practical experience in file handling and file management on the microcomputers compared to the facilities on Tasnet.

In summary, the happy co-existence, the marriage, the symbiotic relationship of student use and administrative applications that has been a hallmark of Tasnet in the 1970s, is under threat of separation. More and more of the teaching side is moving towards microcomputers. □

TASNET 1981



Lisa — impressive but premature

By David Ferris

APPLE recently announced its new personal computer, the Lisa. This is an important machine which at first sight is hard to assess. The tightly controlled sales presentations cause people unfamiliar with the technology to feel somewhat over-awed.

To get a better feel for the product, I accepted Apple's invitation to test a pre-release version. As a consultant, I have often been asked to review the state of products under development, and having tested the Lisa, I'm impressed with it. However, I think the product isn't nearly as ready for market as Apple would have us believe — the scheduled Australian release date of June looks very optimistic.

Lisa has many striking features, some of the most notable are illustrated by the photo (below) and the box on page 50. Apple has decided, rather heroically, to go it alone software wise, at least as far as the main general-purpose applications go. They have developed, or are in the process of developing, various programs for business users: a spreadsheet (LisaCalc), a word processor (LisaWrite), a file manager (LisaList), a graphics processor (LisaList), a free-form drawing package (LisaDraw), a project planner (LisaProject) and a terminal emulation package (LisaTerminal). Some of these are very eye-catching, and the desktop context they're presented in enhances their attractiveness.

Apple has put a great deal of effort into developing all this software, and correctly describes the Lisa as a software machine. Much of their effort has been productive, because Lisa abounds in facilities that are unprecedented in the personal computer world. LisaWrite has magnificent, typesetting quality word processing, and LisaProject lets the user manipulate network diagrams in the natural way, rather than through oblique references to numbered tasks. The free-form drawing capability is so new to me I have difficulty in assessing it, but it promises to be a boon to many applications.

The good news is that Lisa is genuinely attractive. The bad news is that when



David Ferris is an independent consultant with expertise in main-frame, mini and micro software packages. Based in San Francisco and London he is founder of Ferris Corp which provides personal computer support to the data processing departments of large organisations.

you actually sit down and use the software, you find things are not as rosy as the sales presentations suggest.

The Mouse is frequently a hinderance. Apple is making a big to-do about pointing rather than typing, but very often, typing is preferable. Apple must have come to recognise this, because on many menus you notice that they

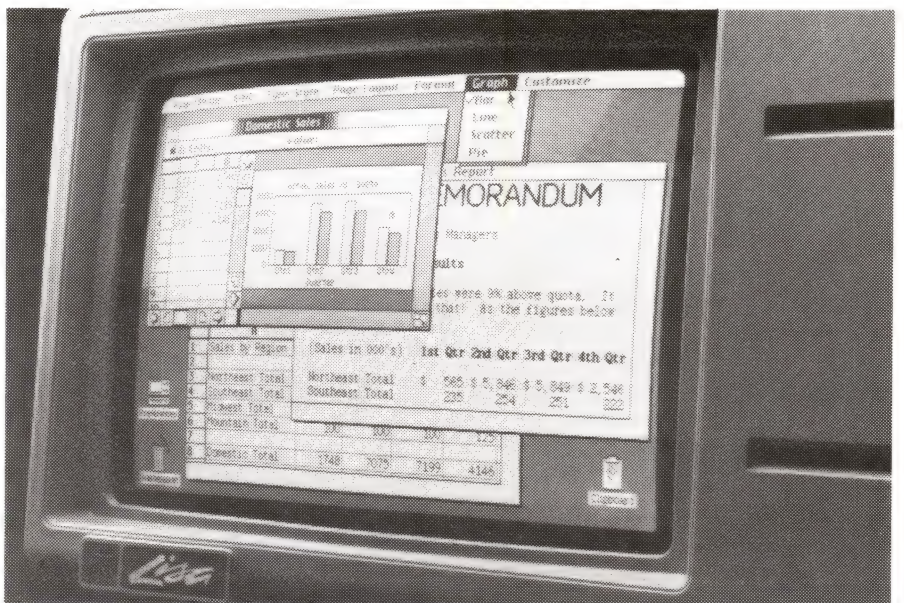
have been forced to include what they call "Apple keys". These are nothing more than traditional control key sequences.

Apple's proprietary applications such as LisaCalc display excellent command consistency, and the ability to view two or more applications concurrently is useful. The ability to interchange heterogeneous objects between applications (eg: spreadsheet to pie chart to free-form drawing) is also superior to existing integrated packages.

But the transfer of objects between applications (eg: spreadsheet to graphics) requires too much effort. You still have to go through a process which parallels the traditional multi-step dumping of a file, loading the new application, and reading in the dumped file again. So if you change your spreadsheet, you still have to go through significant effort to reflect the changes in your bar or pie chart.

Apple is obsessive about command consistency. For example, when you want to do a spreadsheet replication (a very common action) you're forced to go through a series of ungainly steps, and clutter your mind with extraneous notions such as cutting and pasting onto an intermediate clipboard. Anyone but

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This picture shows Lisa displaying all integrated software applications simultaneously.

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the most novice of users will find it much easier to type in the normal kind of cryptic command string, /R, return, A4.A15, return, for example.

Software requires final polishing. The main parts of the code are in place, but the remainder — the part required to bring it up to release quality — isn't yet completed. For example:

- the replicate command needs the spreadsheet to scroll as you point to the replicate range. It doesn't, and you have to use an undocumented quick fixup;
- LisaWrite has vertical scrolling using an "elevator bar", but the horizontal elevator bar is missing;
- manual index references are erroneous; and
- It's easy to run out of memory space when using the different applications.

Unfortunately, cleaning up these kind of problems — ie. making the software usable and reliable for a wide variety of customers — ends up taking vast amounts of development time, as many software houses have found to their chagrin. The software requires a lot of polishing to bring it up to release quality.

'A lot of things users need and expect now are being left to (often distant) future releases' ,

A lot of things users need and expect now are being left to (often distant) future releases. For example, you can't use LisaList names and addresses for a LisaWrite mass-mailing; LisaList has no formatted screen data entry and query facilities; and in February the terminal emulation package wasn't even ready for beta test type demonstrations (as opposed to sales presentations). If you want to develop a turnkey DP system in Cobol, you'll find that there's no formatted screen support package; no window, mouse, and menu support packages; and no shared database access for each user.

Lisa's striking features

Lisa has many striking features, some of the most notable are described here.

Desktop Model: When using Lisa, you think about the environment using the sort of concepts that are involved when thinking about your desktop. What you see on the CRT looks like a desktop (see photo). You can view different worksheets from different applications at the same time. You can clear worksheets off the desktop by putting them into folders. You can get rid of files by dropping them into a wastebasket. Readers familiar with Xerox' Star computer — the first commercial offering of this desktop interface — will recognise that Lisa derives directly from it.

Graphics: Lisa's powerful graphics capabilities have been used to enhance common facilities.

The word processor offers many different kinds of font, and you can vary the size of characters. All this is done before you on the screen.

The project planner lets you manipulate a task network diagram directly, on the screen.

You can draw free-form on text or graphs.

Mouse: Lisa uses a simple hand-held device you rub about on your desk to point to locations on the CRT screen. In a conventional computer,

you typically have to push cursor control keys to do this, and the mouse simplifies matters. Lisa takes the mouse to heart, and most of the central application programs all use it. Apple sees this "point rather than type" philosophy as a major step forward in ergonomic design.

Application Integration: The current interest in integrated software suits Lisa well. The desktop environment, and the applications provided with Lisa, have been carefully designed to share the same commands and concepts. Thus you go through the same actions to save, delete, or transfer files, no matter what program you happen to be using. Further, things that are conceptually identical or similar (eg: to delete a file, and delete a collection of data records; or to make a copy of a graph, replicate a spreadsheet cell, and copy of block of text within a document) are done in identical or very similar ways.

Lisa also provides an excellent degree of data transfer between applications, eg: between spreadsheet, graphics processor, and free-form drawing facility. To transfer data, you simply transfer it into a general-purpose file (presented to users as a clipboard). Then you pull the next application out onto your desk, and pull the data off the clipboard into it. □

Apple has announced a very optimistic release schedule within which it must bring Lisa to release quality. The projected initial release date of June looks unattainable, because I don't see how they can have proper beta testing for all the software done in time. To actually release as planned will, I believe, bring support nightmares for the corporation.

Lisa's proprietary applications may be ready for restricted, controlled release earlier, but I can't see a general release of the applications being wise

until at least the end of the year.

Similar reservations apply to further product announcements. In particular, the company has correctly recognised the need for mainframe and inter-Lisa networking facilities, but is leaving itself only a very short time to do the work.

To summarise: Lisa really is an important machine. But many users will find it discrete to treat the announcement in the IBM sense. To my mind, Apple has uttered a firm public statement that Lisa is in the works, rather than a happy cry of "on your dealer shelves next week." □

Learning can be fun with Rocky's Boots

By Scott Mace

IT'S an electronic Tinker Toy set, according to designer Warren Robinett.

That might be, but Tinker Toys never moved of their own accord, glowed orange with electricity, powered clackers or punchers or behaved according to a strange set of logical laws that underlie electronic circuit design.

The circuit-designing game for the Apple II, Rocky's Boots, is now available for \$A89.95 through Imagineering of Ultimo, NSW.

australian Micro computer magazine Software Report Card				
	Poor	Fair	Good	Excellent
Performance	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Documentation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Ease of Use	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Error Handling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Written by Robinett and Leslie Grimm of The Learning Company in Portola Valley, California, Rocky's Boots is perhaps the first program to exemplify how educational software can be. Not only does it make a dull subject live and interactive, but it combines education with play.

The medium is familiar to most Australian children; the video game. Although the player can use either joystick or keyboard, he need not type a single word or string. Each movement involves only a single keystroke or a single tilt of the joystick.

• Scott Mace is a senior writer with Infoworld.

In Rocky's Boots, everything builds on previous experience. Six sections present the tools and the games. In the first section, the player learns how to move the cursor. (The screen tells the player, "This little box is you.") The player moves from "room" to "room". Each room is a new screen.

By pressing the space bar or moving the joystick, the player can pick up or drop one object at a time. The game's silence is broken by a clacking bird. The player learns to use Control-G to toggle sound on and off.

The second section is Building Machines.

The game explains: "Machines are like the light in your house. Electricity turns them on. But in this game you can see the electricity. It is orange."

The player finds pieces of wire, with an arrow on one end for output and a blunt end for input. He can join the wires or split them apart with a video knife. He can attach various appliances, such as clackers, thrusters and kickers, to the wires.

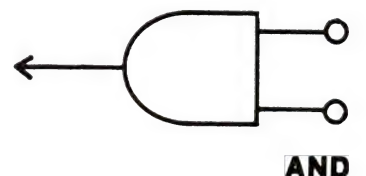
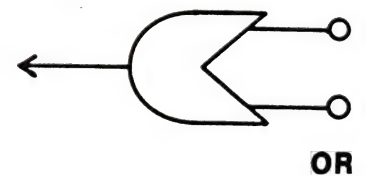
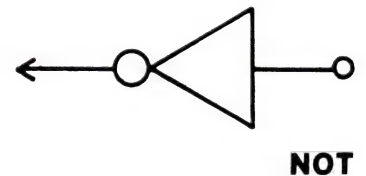
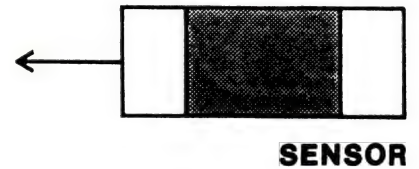
In Logic Gates, the player sees Boolean algebra gates. The NOT gate turns input on, or turns input off. The OR gate can turn on from either of two inputs. The AND gate requires electricity from both inputs at once.

The fourth section of the program, Rocky's Boots, lets the player test his machine-making ability for the first time. Using sensors that produce electric current only in the presence of a certain color, the player constructs machines to kick targets for points. After you play a successful game, Rocky the raccoon dances on the screen.

Flip-flops, the fifth part, introduces other circuit components, such as delays and clocks, that regulate the timing of electric cycles.

In Rocky's Challenge, the logic game requires skilful use of all the components introduced in the preceding five sections. Targets are of certain shapes and colors, such as "convex", "un-purple non-square", "square until cross", and "purple or square, but not both".

The functions of each part are easy to understand, because of the on-screen narration and ample opportunity to experiment with each new object. Putting



Rocky's Boots symbols

together a working machine for the tasks above is not so easy. Still, The Learning Company has designed its succession of logic games so that children can rapidly reach a point where they can amaze their elders, some of whom no doubt did not understand Boolean logic when they were in school.

Rocky's Boots and a number of other educational packages from The Learning Company, all compatible with Apple II micros and intended for use by small children, are available from Imagineering.

Further information: Imagineering, 22-40 Sir John Cres, Woolloomooloo, NSW 2011. Tel: (02) 358 3011.

MBA is first choice when linking PCs to other computers

All things considered, MBA from Context Management Systems is an exciting program. It's for users who write many short reports that contain a mix of graphs, tables and text. For users of IBM PCs needing to send and receive information from other computers, MBA is the best choice.

By Andrew T Williams

MBA provides the executive, the manager, or the professional with a worksheet containing almost 100,000 cells arranged in 96 columns and 999 rows. VisiCalc, in contrast, has only 16,000 cells in 63 columns and 254 rows. With MBA one can create very large models or models that have several parts on the same worksheet.

The program requires an IBM Personal Computer with at least 256K of RAM, two disk drives, and a monitor. You can use the IBM monochrome monitor, but it will not be capable of displaying or printing graphs. A color/graphics card and a suitable non-IBM monitor are required to utilise the graphics capability of MBA. The program does not, however, display output in color. MBA is supplied with a run-time version of the UCSD p-System, so PC-DOS is not needed. Finally, the communications feature of version 2.0 requires a serial port and a modem.

As with all worksheet programs, MBA stores information — text, formulas, functions, and numbers — in cells. Each cell represents the intersection of a row and column in the standard worksheet format. A model is constructed by using mathematical formulas to relate the information in the rows and the columns.

MBA carries this process a step further. Up to 8000 characters of information can be entered into a single cell. For example, cell A1 could contain five

pages to text, cell A2 could contain the information from a 10-column-by-15-row worksheet. The next three cells, A3 to A5, could contain the commands to create a pie chart, a line graph, and a bar chart based on the information in the worksheet in cell A2.

Finally, some concluding text could be located in the last cell, A6. A command to print cells A1 to A6 would produce a short report, with the table and the graphs integrated into the text.

The information in a text cell or a portion of a worksheet compressed into a single cell (using an MBA command called Combine) can be edited with the word processing commands. When numbers are combined into a cell, however, they are converted to text and are no longer available for manipulation with the worksheet.



Fortunately, combining a worksheet into a cell doesn't erase it from its prior location, where it is still available for calculations or for interaction with other worksheets, the graphics functions, and the database.

In the typical electronic worksheet, the replicate command takes information from a cell or range of cells and reproduces it in a different area of the worksheet. This command is one of the most powerful and frequently used commands on any electronic worksheet.

The MBA replicate command can do

the traditional tasks and more. It can replicate blocks of information, not just ranges of cells, and it can make multiple copies of cells, rows, columns, or blocks. This feature is particularly useful when you are preparing worksheets in which the same labels or groups of labels are repeated or for which several similar tables are needed in an analysis of different options.

MBA has a powerful command, CPY, that allows you to merge information from one worksheet into another, even when the two worksheets are stored on different disks. To accomplish this operation the range of cells to be merged must first be designated with what MBA calls markers. Markers are strings of up to 15 characters placed at the beginning and end of the material to be merged.

The CPY function makes it easy to consolidate regional, quarterly, or divisional reports into a summary report. The same feature allows you to construct sophisticated, interrelated models that are limited in size only by a system's disk storage capacity.

Markers can be used in place of a cell address in any function, formula, or command. For example, the words Beginning and End might be used to designate the range in the following summation function:

SUM(BEGINNING...END)

Similarly, if Start marks a particular place on the worksheet, the marker can be used in place of the cell address in the Goto command.

MBA's use of markers represents an early step on the road to using full English-language commands and away from the abstract grid of the traditional worksheet.

The MBA storage command is a good example of the trade-off between power (MBA's storage command is powerful) and ease of use. To store or retrieve an MBA worksheet, three pieces of information are required: a disk or volume name, a folder name, and a document name.

You will find this three-level structure convenient if you have a very large

• Andrew T Williams is a contributing editor to PC World. He teaches at the School of Business Administration at the University of California.

number of documents in storage. On the other hand, if you don't have such extensive storage needs, you may find MBA's hierarchy of volume, folder, and document names inconvenient and possibly confusing.

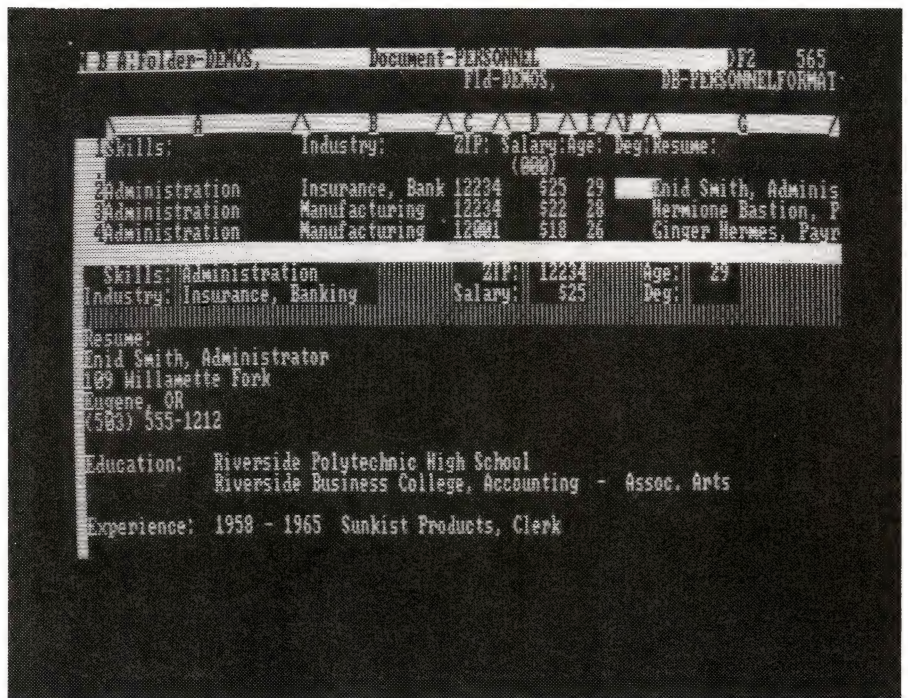
Most worksheet programs allow the screen to be split either horizontally or vertically into two parts or windows. This feature makes it a good deal easier to work with large models that cannot be displayed on the screen at one time. MBA goes the standard worksheet two better; its screen can be divided into two, three, or four windows.

Having four windows might seem excessive, but actually this can be a very useful feature. One window could be used for a worksheet model. Another might display the database that would be providing information to the model in the first window. The third and fourth windows could contain two types of graphs — perhaps a scatter plot and a combination bar/line graph — that would be redrawn every time something changes in one of the other two windows.

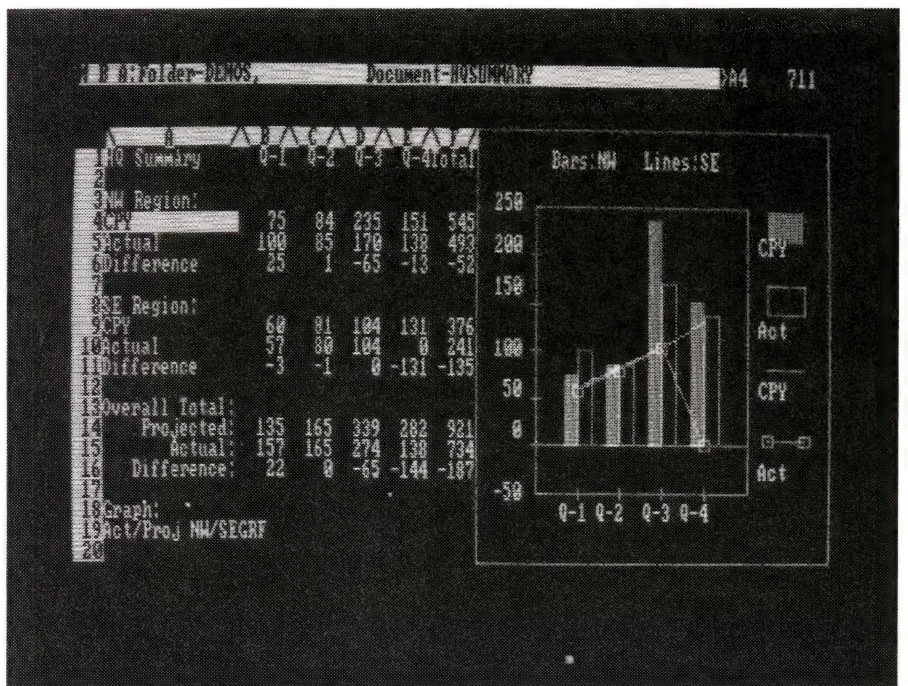
In previous MBA releases, word processing required the entire screen, so it could not be used while you were displaying a worksheet, database, or graph. With release 2.0, MBA allows word processing in one of the windows of a split screen. The window containing word processing must be 80 columns wide, which means that only two other windows can be used during this operation. Still, the ability to have a worksheet, a graph, and an area in which to take electronic notes or write a report about what you are presently viewing in one of the other windows is a powerful feature of MBA.

MBA has all of the standard worksheet commands and functions plus a good deal more. The format commands for dollars and cents and percentages automatically supply a dollar sign or a per cent sign to the formatted cells. Titles and numbers can be centred in a column in addition to the typical right or left justification.

(Continued next page) Graphics and Data Share MBA screen.



MBA's Forms Mode display.



Graphics and Data Share MBA screen.

MBA spreadbase

(Continued from previous page)

MBA provides two types of internal-rate-of-return calculations and statistical functions for calculating the variance and standard deviation of a set of numbers.

Version 2.0 makes full use of the function keys on the PC. Four alternate keys duplicate the cursor movement keys so that you can use the number pad (as if it were a calculator) for rapid data entry. The Goto function starts with a function key, rather than the less convenient greater-than symbol key.

Another feature added to MBA in version 2.0 is the ability to display formulas in their locations on the worksheet and to print them with the printer. This is an important aid to spreadsheet model building as well as an easy way to make backup copies of the formulas and functions used to construct a spreadsheet.

For all its useful features, MBA is simply not a fast program. Several improvements have been made in the most recent version of the program, however, resulting in speed increases of up to tenfold in certain areas of the package. The areas that have benefited most from these improvements are cursor movement, screen scrolling, and worksheet recalculation.

Recalculating the worksheet still takes longer than it does for a similar VisiCalc or 1-2-3 worksheet, but MBA's latest release is three to five times faster than earlier versions. Context spokesmen have acknowledged the slowness of certain parts of the program, but they believe that this shortcoming is more than offset by the power of the total package — worksheet, communications, graphics, word processing, database, and forms.

The communications component, in particular, is a great time-saver. MBA can download into designated cells on a worksheet from another computer

much faster than the same data could be entered into another program by hand. Clearly, if you can save large

amounts of time entering data, this may to some extent compensate for the slower recalculation speed.

MBA has a number of nettlesome shortcomings. In the much-used function for summation, SUM(A1...A20), MBA requires that the three periods each be typed separately. By contrast, VisiCalc and other programs that use this convention recognise the first period and automatically supply the other two. This is a small point, but some other MBA commands (the range in a replicate command, for example) follow the VisiCalc convention exactly, so this inconsistency leads to confusion.

The program's edit function seems overly complex, requiring several commands to make any change in text. For example, a simple procedure of correcting one wrong character in an entry necessitates the following command sequence:

/EX(character) Ctri-C Ctri-C

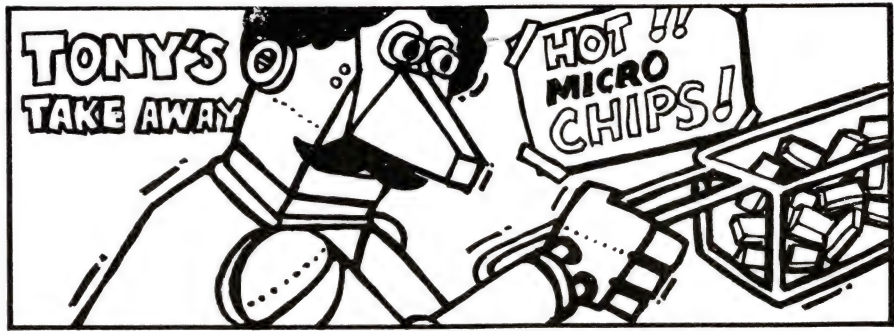
Finally, MBA doesn't display the contents of a cell on the edit line as the cursor is scrolled across that cell of the worksheet as most other worksheet programs do. The only way to discover or alter the exact contents of a cell (a formula or function, for example) is with the edit command. □

australian
Micro
computer magazine

Software Report Card

	Poor	Fair	Good	Excellent
Performance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Documentation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Ease of Use	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Error Handling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

MBA is a product of Context Management Systems, 23864 Hawthorne Blvd, Torrance, Ca 90505. Available in Australia from ACI Computer Services, PO Box 42, Clayton, Vic 3168. Tel: (03) 544 8433. Requirements: IBM PC with 256K, two disk drives, color/graphics adapter, UCSD p-System.



VIC-20 is first to crack million sales

ARTARMON, NSW — The VIC-20 has become the first microcomputer to crack the one million sales barrier.

The VIC-20, which is a combination of video games and home computer, is sold by Commodore Computers.

Commodore's Australian sales manager, Roger Davis, said research had shown people wanted not only a games machine, but a home computer as well.

"And the VIC-20 is the most affordable personal computer on the market," he said.

Further information: Commodore Computers, 3 Campbell St, Artarmon, NSW 2064. Tel: (02) 437 6296.

76 models now in DC supply line

POWER-ONE, whose products are distributed throughout Australia by Warburton Franki, has added 32 standard models to its International Series DC power supply line.

The series now offers 76 off-the-shelf models for meeting standard OEM requirements to models for special applications such as Winchester and floppy disk drives, terminals, word processors, printers and microcomputer systems.

The International Series power supplies were designed for products targeted for distribution throughout the world's major electronic markets, the company said.

Further information: Warburton Franki Ltd, 372 Eastern Valley Way, Chatswood, NSW 2067.

Visionhire wins GMH contract

VISIONHIRE has won a contract to supply General Motors-Holden dealers with videotex terminals.

Videotex will form the backbone of GMH's stock locator system, enabling its dealers to find, and provide information on any car model according to customers' specifications.

The service to be introduced this year, will eventually link 300 GMH dealers throughout the country.

The system network is operated by Control Data with software provided by Computer Power.

Further information: Visionhire (Australia) Pty Ltd, 144 Pacific Highway, North Sydney NSW 2060. Tel: (02) 92 0902.

Sanyo increases its dealerships

NORTH SYDNEY — Sanyo has increased its computer dealership from nine to 29 on the heels of its recently released MBC 1000 microcomputer and SSS business software package.

An add-on hard disk has just become available for the MBC 1000 and Sanyo plans to release a number of more advanced micros later this year.

A spokesman for Sanyo Office Machines said the 29 dealers would form the base for the company's market thrust over the next few years.

Further information: Sanyo Office Machines, 127 Walker St, N Sydney 2060. Tel: (02) 929 4644.

Dick Smith cuts System 80 price

DICK Smith Electronics has reduced the price of its System 80 microcomputer from \$A750 to \$A499.

The company said the costs of producing microcomputers had been reduced.

System 80 features included a flashing cursor, built-in speaker, upper/lower case character display, monitor program, screen print facility, three month warranty and a built-in tape recorder.

Further information: Dick Smith Electronics Pty Ltd, 396 Lane Cove Rd, North Ryde, NSW 2113. Tel: (02) 888 3200.

Accounting product for 820 users

AN accounting software product has been launched by Burroughs Ltd for use with its B20 microcomputer.

The Executive Accounting System (Easy) has five modules covering invoicing and orders, accounts receivable, accounts payable, inventory control and general ledger.

A Burroughs spokesman said Easy would allow different applications to employ the same disk and printer simultaneously.

He said its features included automatic back-up and restoration of data files, online real time updating, "help" screens to guide operators on request, and multi-user access to record level.

All modules could process, store, report and inquire into 99 companies and could be operated on up to four workstations per configuration.

Costs were \$A895 per module, including a self-teaching course. The B20 costs \$A14,000.

Further information: Burroughs Ltd, 30 Alfred St South, Milsons Point, NSW 2061. Tel: (02) 922 9300.

Australian package offered on IBM PC

TRACKFAST Computer Pty Ltd, the NSW distributor for Sybiz Software, has released the Sybiz general accounting package for the IBM PC.

Sybiz is an Australian product which runs under CP/M, MP/M and DOS.

It includes debtors, inventory, invoicing, order entry, creditors, general ledger, payroll and job costing in a fully integrated database, the company said.

Also included was a report generator which allowed the users to format their own reports according to their requirements.

Further information: Trackfast Computers, 220 Pacific Highway, Crows Nest, NSW 2065. Tel: (02) 922 6833.

Burroughs appoints first retailer

MILSONS POINT, NSW — Burroughs Ltd has begun marketing its B20 microcomputers and associated software through retail outlets.

It has appointed PAD Computers Pty Ltd of Randwick (NSW) as its first dealer.

ACI supports PC comms

ACI Computer Services (ACICS) Pty Ltd's entry into personal computers puts it in a unique position to capture the serious business market for communicating micros.

ACICS has had its own marketing organisation for its bureau services since 1975. It looks after several dial-up services including Ausinet databases, Foresight financial modelling, electronic mail, Rosco remote job entry and Focus a 4th generation language.

ACICS managing director, Tony Klingender, said the company sees each of its 500 bureau customers as a potential PC customer and all of its new PC customers as potential bureau clients.

In addition to its index of Australian Financial Review news reports, Ausinet provides access to a number of indexes, bibliographies and information services, with particular emphasis on earth sciences, roads and transport, and business news.

ACICS claims to be developing Micro-Foresight, a PC version of Foresight which would enable almost all financial modelling work to be done off-line. This would mean that the compatible Foresight bureau service would be called on only for particularly complex tasks.

Switching between the various ACICS bureau services has been provided recently so that a PC buyer with the necessary options would be able to use all those services during the same phone connection.

ACICS product manager for the PC, Don McEwan, said that the minimum user requirements for the bureau service were an acoustic coupler, a \$A211 asynchronous adaptor, and \$A101 communications support software.

Implementation of SNA 3270/SDLC and 3770 remote batch communications to take better advantage of IBM host computer facilities were expected to be available soon.

Some of the ACICS services, including ACIMail, use HP-3000 computers at the bureau. ACICS is talking to Hewlett-Packard in particular about additional and alternative products to stock beside the IBM PC.

"We don't want 200 software products

on the wall, but rather a sufficiently small range that our sales people will know enough to be able to give responsible advice," McEwan said.

Among the third party software being handled by ACICS is Context-MBA, a widely acclaimed integrated product seen as a rival to VisiON and Apple's Lisa, and an \$A99 business graphics package.

ACICS has assembled a team of 16 to look after its marketing of the PC, including four who have switched from the mainframe area.

The retailing venture has caused ACICS to look for a near-city shop-front in Melbourne away from its Clayton head office and to relocate a couple of its branch offices in other states. □

Software developers digest Lisa

By Rory O'Connor

APPLE Computer Inc's new Lisa computer is stirring application software support from the minicomputer and Unix communities rather than from the more traditional Apple software houses.

Applications compatible with the Lisa's alternative operating systems, CP/M and Xenix, are expected to be the first out of the chute, according to software house executives and Barry Smith, Apple's personal office systems division marketing manager.

And more applications are expected to filter down from an entirely new source — minicomputer, supermini-computer, and mainframe software suppliers.

Meanwhile, many Apple II software suppliers said they will not be developing products for the company's flagship machine, citing factors such as its cost; uncertainty over its sales volume; and probable competition with the Lisa's bundled applications. Many also said they have already made commitments to develop software for machines with large numbers of existing owners.

And a surprising commitment has come from VisiCorp, which last fall announced its VisiON, a product that competes with the Lisa's "electronic desktop" front end. Smith said VisiCorp has "expressed a strong commitment to work with us" on Lisa software development.

Apple is counting heavily on applic-

ation support from all the independent developers. The company hopes about 90 per cent of the applications will come from that source, Smith said.

The Unix marketplace is expected to provide a number of applications for Lisa. Two versions of Unix are available for the Lisa — Xenix from Microsoft Corp and UniPlus + from Unisoft — and applications already exist for those systems, developers said.

Microsoft's Mark Ursino, Xenix product marketing manager, noted that the complexity of the Lisa native interface may cause developers to shy away from it, making the Unix marketplace a logical source for software.

"I think that as far as traditional business applications are concerned, the vast bulk of them will come by way of the Xenix operating system, migrating from the Altos or Fortune machines," he said.

Development of packages running under the Lisa's own operating system will come more slowly, due to its complexity, and to a lack of machines in the hands of developers, software executives said.

Smith said Apple plans to aid third-party vendors through technical seminars, equipment discounts, local training and a Lisa "tool kit" of programming aids.

But he admitted that he did not expect many applications written for the Lisa operating system to be available until the end of the year.

For many companies now making Apple II programs, the uncertainty about market size has led to decisions to hold off — temporarily or permanently — on software projects for the Lisa. Even by the manufacturer's most optimistic estimates, only 10,000 will be installed this year.

Developers geared to the mass market, where machines are delivered in six-figure quantities, look at the projected sales for the Lisa with dismay.

To be profitable, applications packages would have to sell for considerably more on the Lisa than on mass-market machines like the IBM Personal Computer, software executives said.

However, software prices are coming down, causing some vendors to wonder if they will be able to convince the customer to pay top dollars for software. □

● *Rory J. O'Connor is senior writer with Infoworld.*

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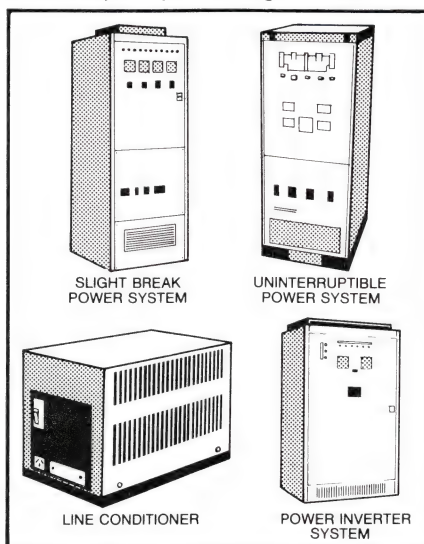
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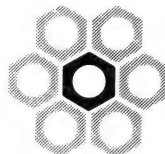
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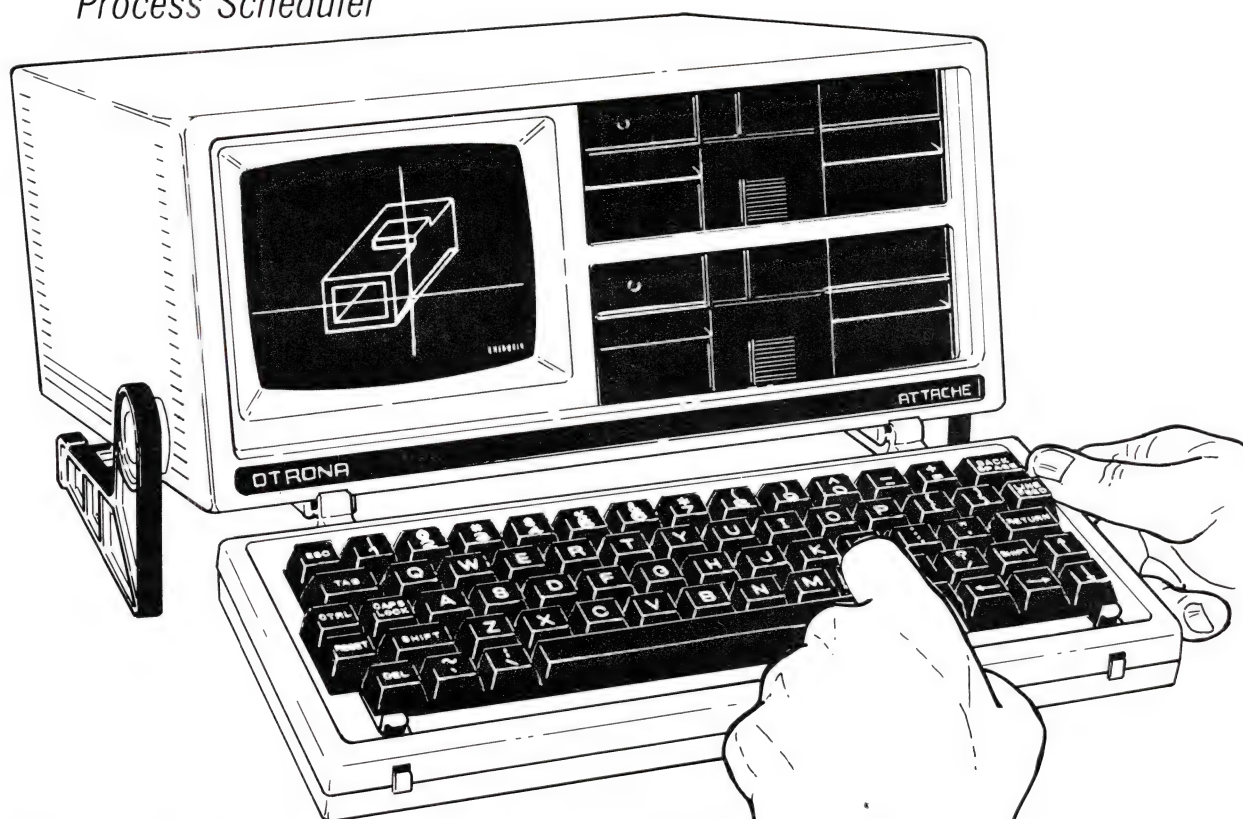
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Downturn by Atari stuns analysts

BUSINESS analysts were stunned by Warner Communication's announcement that earnings for the fourth quarter of 1982 would only increase by 10 per cent on 1981.

The company previously predicted a 50 per cent increase.

It blamed the figure on the poor performance of Atari game machines.

Atari has been hit by the invasion of low cost home computers into the market and adapters that allow Atari cartridges to be used with other machines.

Atari attempted to reposition its range of computers in 1982 with a massive software effort. It encouraged Apple software companies to convert their products to Atari and supported the establishment of a vigorous user base with the APX user written software program, the Antic magazine and disclosure of system source code.

This activity was based on an analysis of the success of Apple in using its user base to develop the market for its products.

Atari has attempted to upgrade the existing product range by releasing an add-on keyboard for the VCS game machine so that it can compete against the Vic 20, and by the release of a new personal computer, the 1200 XL.

The 1200 has not been well received in the US as it offers little new apart from extending the Atari 800 environment and the pricing of the unit has not been aggressive enough to attract a greater marketshare.

Atari laid this month off 1700 employees at its Californian manufacturing plants this month and announced it intended to relocate the plants in Hong Kong and Taiwan.

Morale in the software development section of Atari is said to be low.

Atari laid off 1700 employees this month at its Californian manufacturing products.

The appointment of the legendary Alan Kay as chief research scientist last year was seen as a clear indication that Atari intended to develop a Dynabook product.

Kay is reputed to have been given a large budget to develop a useful per-

sonal computer that would enable Atari to compete in the elusive home market.

Atari also has announced a development program for telecommunications products. Ataritel would involve the company in the emerging home information market.

Apple battles on against imposters

APPLE has continued to fight against the manufacture of counterfeit and software compatible Apple computers.

Apple Computer Inc has taken legal action in Taiwan against manufacturers of counterfeit Apple IIs. But it has only resulted in small fines being levied.

Increasing pressure has been put on the US International Trade Commission to initiate an inquiry to ascertain whether US patents and copyright held by Apple are being violated.

Apple has three US patents on the Apple II covering the power supply, hires graphics generation and the disk controller card. Apple has been most successful against manufacturers who have reproduced the Apple II motherboard.

Several manufacturers have developed computers that are compatible with Apple software and peripheral cards, offering enhanced features at a reduced prices similar to the large IBM-PC clone industry. Franklin and Basis are the leading manufacturers with the ACE and the Basis 108 or Medfly.

Apple has attempted unsuccessfully to prosecute Franklin in the US which has encouraged the widespread distribution of the Franklin ACE.

In Australia, Electronic Concepts has fought importation of Apple lookalikes and Apple's imported from outside distributors.

At the APC show an injunction was served on Microeducational who were displaying a Golden II. It claimed infringement of Apple copyright. The case is before the Supreme Court.

Leading Apple compatible machines should be in Australia soon. Local distribution of the ACE and a new version of the Basis 108, renamed the Medfly are expected to be distributed.

Apple Inc redesigned the Apple motherboard for the IIe to make it harder to counterfeit. The real challenge will come from the compatible machines which offer better performance at reduced cost, which is attractive to users

who regard the Apple II as overpriced.

Apple Inc has been accused of overreacting to the appearance of the compatible machines and using its financial strength to attempt to deny access to the market created by the Apple II.

Apple has announced that cost reductions achieved on IIe production lines would be passed on to users.

Commodore, Zilog swap technology

COMMODORE and Zilog have agreed to sign a technology exchange agreement.

Commodore will be licensed to manufacture Zilog's 16-bit Z8000 microprocessor and related chips. Zilog is licensed to manufacture some of Commodore's custom circuits for sale back to Commodore.

MOS Technology, owned by Commodore and it's usual source of silicon, has left it too late to supply Commodore with the 16-bit microprocessor it needs for it's next generation of business systems.

Commodore chief, Jack Trameil, has been interested in Zilog for some time and the agreement coupled with Commodore's shareholding in Zilog indicates that the Z8000 will show up as a high volume product from Commodore.

Until now, the Z8000 has only been used in the Olivetti M20 and the Onyx and had not been successful against the 68000 microprocessor. Digital Research also has just announced it will release Z8000 CP/M later this year.

Industry observers commenting on the co-processing attributes of the new family of chips developed by MOS for the 500 and 700 models, have said that Commodore appears to be positioning them as MSDOS machines, running an 8088 as a co-processor with the 6509 processor.

These machines would be competitive in price and would provide a migration path for Commodore's users from the Commodore operating environment to the MS DOS, CP/M and Unix operating systems.

IBM's purchase of a stake in Intel and rumors of a relationship between National Semiconductor and Apple highlight the feeling by computer manufacturers that they must stay close to the chip designers.

They believe that any advances in personal computers developed for the mass market will start at the chip factory.

Sigma Data back in systems market

SIGMA Data has re-entered the computer systems market with the Australian distribution for the multi-function workstations made by Convergent Technologies — one of the fastest growing, most innovative companies in the office automation area.

The company has had spectacular growth since it was formed in late 1979. Its range of products based on the Intel 8086 microprocessor and creative software and hardware design has delivered the promise of intelligent networked workstations offered by the microprocessor.

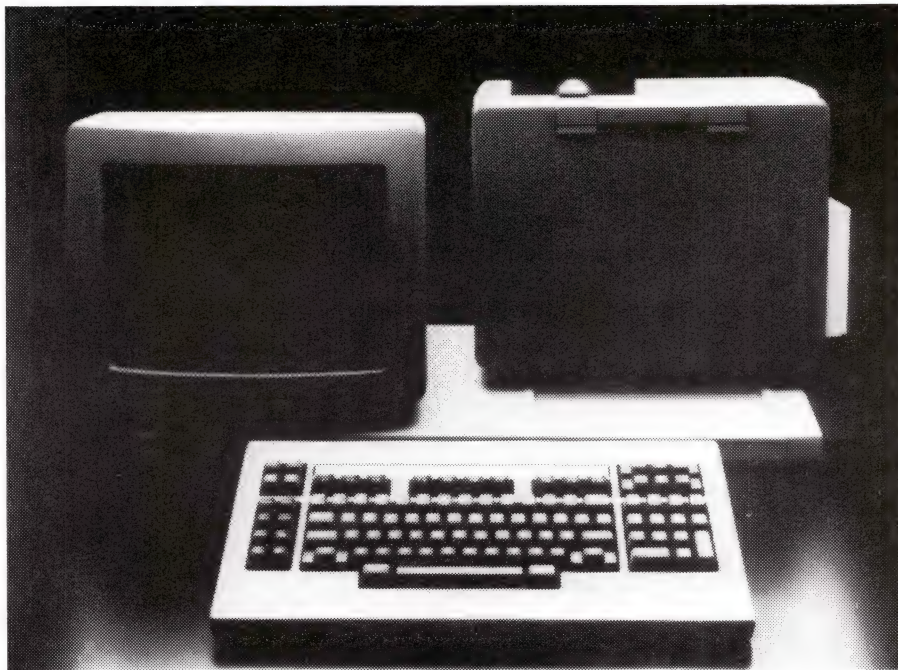
Convergent produces two families of workstations based on the 8086 with 512K to 1M-byte RAM. The display ranges from an 80 x 26 text display to a 1024 x 1024 display memory with 656 x 510 viewport. Color graphics is available with eight colors from a palette of 64 displayable at any time.

Mass storage ranges from single or dual 640K-bytes 5in drives to 15M-bytes of Winchester hard disk. Mass storage can be housed in a desktop enclosure or in a floor standing unit.

Serial and Centronics ports are supported on a local area network for joining stations into a cluster. A separate I/O processor can be fitted if more than four stations are to be clustered.

The hardware is arranged onto four boards linked by a proprietary high speed bus that parallels Multibus logic.

The operating environment is CTOS a real-time multitasking operating system. The systems support Cobol, Fortran, Pascal, Basic and a development environment with Editor, Linker and debugger. Data management utilities include ISAM, Forms and Sort/Merge. Communications protocols include SNA, X-25, IBM 3270 3280/2780 and CT-Mail, an electronic mail system.



Convergent Technologies' AWS workstation with display and disk storage.

Applications software includes Microsoft's Multiplan, a business graphics package and an outstanding word processor with a high degree of integration.

Convergent Technologies has become successful because it has built a microcomputer system that mainframe computer companies can understand and use without having to make concessions to the microcomputer. Convergent prefers to call the machines desktop minicomputers to differentiate them from other microcomputer systems.

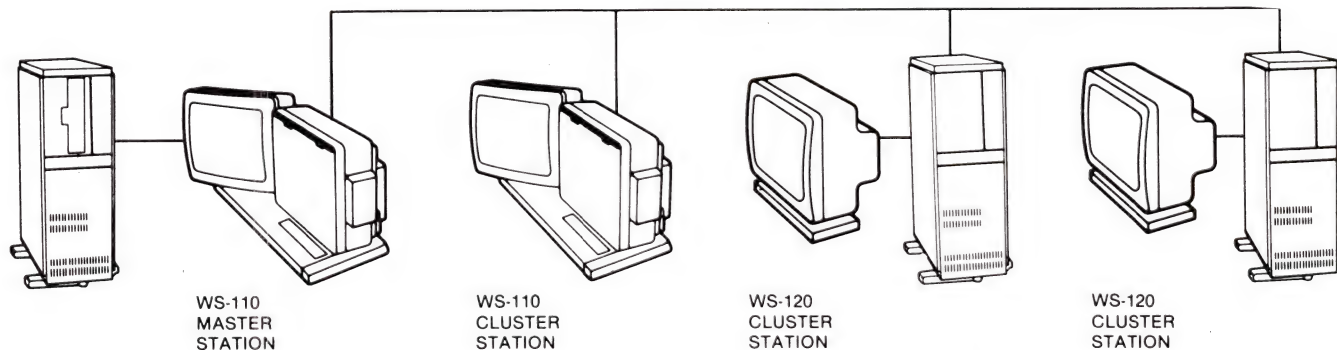
TRW Inc has the international distributorship for the Convergent workstations and so Sigma Data acquired the Australian distribution for the workstations when it decided to re-enter the systems business. The biggest customers of Convergent are the mainframe companies, Burroughs, NCR, Thomson-SCF and TRW. These mainframe companies have adopted the system as an important marketing tool to provide their

customer base with a sophisticated workstation. Burroughs markets the workstation as the B20 and NCR as the Worksaver. US analysts expect Prime to become a Convergent client in the next few months.

The company is reputed to be developing a new generation of workstations and a cluster server using eight 68000 processors that will approach a VAX 11/780 in performance.

Convergent's sales increased from \$A13 million in 1981 to \$A96 million in 1982 and it is expected to achieve the same increase this year.

This family of microcomputers has been built as a communicating system and the acceptance of the machines and the performance of the company reflect the importance and benefits of designing microcomputers that fulfill real functions in data processing systems rather than forcing larger systems to accommodate small systems.



An example of a cluster system using a WS-110 Master with WS-110 and 120 cluster stations.

Your friendly family store may corner the retail scene

Selling at the shop front level is a new ball-game. And it's one the multinational vendors are not too good at playing. The family stores however understand that personality and local knowledge is as important as the product being sold.

By Norman Kemp

MULTINATIONALS may dominate development and manufacturing in the technological world, but your friendly family neighbourhood shop could corner the computer retail scene.

At least three Sydney businesses have strong family affiliations. At Annandale The Computer Shop is run by sisters Hinka and Nynka Haisma; at Hornsby 18-year-old Joan Cooper is managing director of Fox Computers, her mother, Pauline, is a director, and her father, Tom, is managing director of President Office Machines; at Chatswood Steve Byrne manages a Computerland shop and his brother Rod manages the North Sydney Computerland outlet.

Outlets with similar family affiliations are being opened or operated in Victoria and other States.

Virtually none of the large computer manufacturers which have entered the personal computer field in the past couple of years — either for small businesses or home use — have experienced selling at the shop front level. They supply and deliver, but the difficult, and sometimes sensitive, task of making a sale across a counter requires an intimate knowledge of a locality, and a precise awareness not only of a customer requirement but also after-sales service and support that are certain to be needed.

It is in this sort of environment that the family business not only survives, but thrives. The personality of the shop is as important as the product, whether hardware or software, that is being sold.

One of the most enthusiastic of the new generation of re-sellers is Joan

Cooper. After three years training in selling and demonstrating computers for her father up to the latest line of Columbia Multiprocessors, and assisting with clerical work, she is now probably the youngest managing director in the business. At 18, she has acquired the Australian and New Zealand distribution rights for the range of Perfect Software produced in Berkeley, California.

Working from her father's premises, with her mother Pauline as a director, and 25-year old Hugh Burns as sales manager, she is putting together a business named Fox Computer Pty Ltd.

It has a growing list of eight-bit and 16-bit software products that will run on almost a score of popular micro-computers. Among these are the IBM-PC, Apple, Osborne, Kaypro and TRS-80.

Why the name Fox? As Joan dynamically explains it: "It just seemed an interesting name. The fox is a fast-moving animal that always keeps ahead."

The aim of Fox Computer is to supply complete packages. Changes to or modifications of packages for individual customers are handled by the US maker and not in Australia. The present lines are Perfect Writer, selling at \$A495, Perfect Speller, \$295, Perfect Calc, \$395 and Perfect File, \$495. It is rare, Joan says, for a customer to want to vary a package.

She foresees a rapid increase in 16-bit software.

"The 16-bit market is very flexible and a lot of software is coming into it. But there is also a lot of eight-bit software to choose from and people are still looking around," she said.

Although brothers Rod and Steve Byrne do not exactly regard themselves as a family business team, both had several years with computers before becoming shop managers for the Computerland chain. Steve, the elder at 33, was a research engineer working at the Experimental Building Station at Ryde before taking charge of Chatswood five months ago. Rod, 31, has been selling computers for four years including IBM mainframes, and joined Computerland



Tom Cooper (is managing director of President Office Machines at Hornsby NSW. His daughter Joan, 18, is managing director of Fox Computers while Joan's mother is a Fox director.

Chatswood two years ago. He is now manager of a new Computerland store which opened at 150 Pacific Highway in North Sydney in mid-March.

The lower floor area of the new shop is 2200 square metres, but provision is being made for a larger space on the first floor which will be a demonstration and training centre. The present staff of four will be expanded, and when training preparations are completed, Phil Miles — sales manager at Chatswood and former national support manager for Osborne — will join as training manager.

A key feature of the new premises will be the service support which will be available to other Computerland stores which have insufficient space in their own shops.

"We think computer services is a real growth field," Rod said. "It is not only for our own customers, but also people who have bought computers from our other outlets."

The North Sydney Computerland has a range of micros comprising Apple, Atari, Digital Equipment Corporation, IBM, Fortune, Osborne and Sirius. During the first 10 days' trading, the store had a giveaway of an Atari with every order for a micro over \$6000. The most

(Continued next page)

• Norman Kemp is managing editor of newsletter *Systems User and Management*.

Your friendly family store

(Continued from previous page)

expensive product in the shop is the Fortune, which in a multiuser configuration and with terminals and printer could cost up to \$30,000. This is expected to be a competitive product to a high level IBM micro which is believed to be due on the market later in the year.

In other shop front developments, Sydney retailers Grace Bros has launched a rental scheme.

Rentals are one way to give the customer the feel for computing without needing a hard sales approach. Renting has not been a big factor in micro-computer sales although some specialist distributors have tried it.

The method does not suit the customer who wants a home or hobby computer, but it has taxation allowance benefits which make it attractive to the businessman.

Also it can provide a guaranteed standard of service, with the machine



At Annandale Sydney, Hinka Haisma (above) runs The Computer Shop with her sister Nynka.

being quickly replaced if it breaks down, or a later model can be provided if the earlier one becomes obsolescent.

Grace Bros has launched its scheme through its Electrical Services Division, at North Ryde, for renting the Osborne double-density disk drive model which normally sells at \$A2995.

The company also can offer the alternative of the IBM-PC if the customer is looking for a larger computer.

A spokesman said that the Osborne could be rented from six months to three years, with provision for purchase at a residual price after the second year.

A rental for six months costs \$150 a month, and for three years, \$113 a month. Software packages such as Wordstar and Supercalc which were normally bundled into the outright purchase were also available with the rental.

The spokesman said that business users generally recognise the service aspect as the most important part of the deal. The service contract accounted for about 12 per cent of the retail value of the equipment, but ensured that a machine was available in the event of a breakdown.

"Many businesses cannot wait a week or more for a repair, but with the rental scheme they should not have a delay longer than half a day," he said.

Normally Grace Bros rents an IBM dot matrix printer with the Osborne, but this can be varied for a Brother daisy wheel letter quality printer. In addition to North Ryde, Grace Bros has rental stands at Chatswood and Bondi.

Meanwhile Commodore is looking at widespread distribution for its computers through department stores, and negotiations for a number of locations are continuing.

The Commodore Vic-20 should be selling through Myer in Adelaide in April, with Perth and Brisbane openings to follow.

Commodore is also holding discussions with Sydney retail chains Grace Bros and David Jones.

"Department stores do not have to worry about business software," sales manager Roger Napier said. "They will be offering a good range of games, educational and programming assistance products."

Commodore hopes to bring its Commodore 64 business system to chain store outlets, but only when staff have been adequately trained. A number of dealers are writing software for Commodore Pet, 4000 and 8000 machines, with most of these products being compatible with the 64.

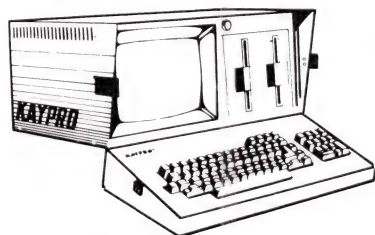
The 64 is sold with an accounting package developed by a Tasmanian retailer, Hopwoods Business Machines of Launceston. Commodore has about 80 dealers and over 400 outlets through which it expects to be selling more than 150 business products.

In the education field, Commodore is obtaining Canadian-developed packages which are in the public domain. The programs were written by the Commodore company in Canada, and about 20 per cent are games with the remainder covering educational topics. The only charge Commodore makes for these packages is for the magnetic disks. With some 500 programs contained on about 40 disks, the price would be \$300. Commodore expects most of its dealers in the education market to hold stocks.

Prices for the British EMI games packages demonstrated at the First Personal Computer Show, in Sydney are still being finalised, but the releases should be available in April, according to Thorn-EMI general manager, Les Smith.

Thorn-EMI is entering the market with 19 titles designed for Atari computers. They will be popularly-priced from around \$30 to \$50. Further releases are being developed for Texas Instruments and Apple microcomputers.

The most popular releases are expected to be the jumbo jet simulator which puts the player in the pilot's seat for take-offs and landings, with navigation between airfields, and a World War II submarine game of hunting a convoy in the Mediterranean. □



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Financial models with Execuplan

DICKER Data Projects Pty Ltd has introduced the first in a series of software application packages that automatically create Execuplan II financial forecasting models on Vector microcomputers.

Called Forecasting Execumodeler, the package with menu prompted commands enables the Execuplan user to create marketing-oriented spreadsheets that specify forecasting requirements, a spokesman said.

In a typical marketing application, the Forecasting Execumodeler could create a series of models to forecast sales of specific products, product lines or services, he said. The user would input the company name, fiscal year, regions, departments, products and expense items, such as salaries, commissions and advertising costs. From this, the package builds a series of models containing the requested information.

The spokesman said Forecasting Execumodeler ran on all Vector micros, including the new Vector B/16-bit dual processor business system.

The package was available through Vector dealers and retailed for \$A395.

Further information: Dicker Data Projects Pty Ltd, 78 Captain Cook Dr, Caringbah, NSW 2229. Tel: (02) 525 2122.

Database aid for IBM PC users

MELBOURNE — The Dewhirst Corporation has released the MDBS III database management system (DBMS) for the IBM Personal Computer.

It is aimed at developers of software applications.

Dewhirst said the MDBS III architecture would overcome limitations inherent in the old relational, Codasyl and hierarchical approaches to database management.

Using subsets of MDBS III features, an application developer could simulate the structures supported by SQL, DL/1, Adabas, Total, IDMS and other large system DBMS.

A Dewhirst spokesman said MDBS III's data description language (DDL) would support nine types of data items, data compression, data encryption, an access code approach to data security, feasibility range checking, multiple relationships between record type pairs (with any of six ordering conventions)

and a number of performance control features.

The latter included assignments of record types to areas, clustering or record occurrences, direct record access (hashing) multiple indices (dynamically balanced trees) for any record type, segregation of records and indices, and variable length records.

The spokesman said all database processing with MDBS III was dictionary-driven. Its data manipulation language (DML) included Boolean commands that performed logical intersections and logical differences on entire groups of records at once. Commands could be invoked in Basic, Assembler, Cobol and C under the PCDOS operating system.

Microsoft Pascal compatibility was on the way, the spokesman said.

A typical entry cost for an IBM PC version of MDBS III was less than \$A4,500.

Further information: Dewhirst Corp, 428 St Kilda Rd, Melbourne 3004. Tel: (03) 267 5877.

Peachpak link

MANAGEMENT Science America (Australia) has announced the release of the Executive Peachpak applications software for four microcomputers. They are the IBM Personal Computer, Hewlett-Packard's Series 100, Zenith's Z-100 and the Epson QX-10.

The Peachpak applications software has been developed by Peachtree Software Inc, a subsidiary of MSA, to provide a link to the financial and management mainframe software marketed by MSA.

MSA (Australia) has indicated it will initially only support the IBM PC implementation and will begin demonstrations of the software this month.

Further information: MSA (Australia), 100 Miller St, North Sydney 2060. Tel: (02) 929 0711.

Support programs for p-System

SOFTECH Microsystems has announced the release of three support programs for the UCSD-p System.

The release of print spooling, a keyed sequential access (KSAM) feature and an advanced system editor follow the release of the Xenofile program that

enables users to transfer files between CP/M and the p-system.

Print Spooler allows users to have text files printed while continuing with normal p-System operations, such as text editing or data entry.

The spooler permits users to create a print queue of up to 21 files, to delete files from the print queue, to display the names from the print queue, to display the names of files currently in the print queue, to temporarily or permanently halt printing of the current file, to continue printing the current file after a temporary halt or to print the next file after a permanent halt.

KSAM supports sequential and keyed retrieval of data. It is designed for use in applications where fast access to information is necessary. Such applications include inventory control, reservation systems, library systems and accounts receivable.

Records contained in UCSD p-System files of such applications can be designated and retrieved by means of identifying keys within each record.

Examples of such keys are parts numbers for inventory control, account numbers for billing systems and customer names for mailing-list applications.

Users can invoke the new system editor, Edvance, as the standard p-System editor if they choose. Edvance is available as an option.

Further information: Softech, 16885 W. Bernardo Drive, San Diego, Calif. 92127.

Modelling package 'easily integrated'

BISPLAN Consulting Services has released a financial modelling package for CP/M and CP/M-86 microcomputers put together by the UK company, Sapphire Mars.

Sapphire sales manager, John Mortimer, said the package could easily be integrated with external accounting systems and word processors.

He also said user written Basic sub-routines could be integrated and the system could be used as a spreadsheet or a model building language.

The Mars modelling system would run on most CP/M or CP/M-86 microcomputers with two drives of at least 250K capacity.

Further information: Bisplan Consulting Services, 10 Help St, Chatswood, NSW 2067. Tel: (02) 419 7822.



Dasher 400 Series Smart Terminals

The Data General smart terminals that make information easier for the user to see and understand. Isn't it frustrating when you cannot do that.

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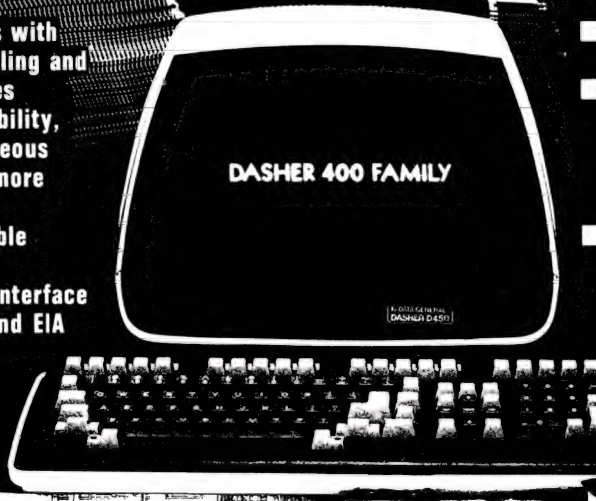
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- Up to 24 windows with independent scrolling and editing capabilities
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Runtime version of p-System released

IN A move lauded by software developers, IBM and SofTech Microsystems have announced availability of a low-cost, runtime version of the p-System for the IBM Personal Computer.

It is the second time in a month that a major price reduction for an operating system on the PC has been announced. In January, Digital Research Inc said it would market its version of CP/M-86 for the PC for \$US60, instead of the \$US250 IBM price tag. The p-System price reduction is more significant, down from \$US600 for the full operating system to \$US50 for the runtime package.

A runtime system, a part of the full operating system necessary to execute applications programs, has long been sought by software authors for the p-System on the PC. Much of the blame for the p-System's low market share on the PC has been placed on its relatively high cost, especially compared to PC-DOS.

PC-DOS, which has the dominant share of the PC operating systems market, has sold for \$US40 since the PC was introduced in August 1981.

In addition to making the p-System more attractive to buyers by cutting the price, the runtime system has another advantage considered important by authors. With the new product, an individual p-System licence need not be executed for each copy of an application sold by a publisher. Eliminating that red tape, developers say, will probably encourage even more sales than would the discount alone.

"I think this announcement is going to really improve our market share for a couple of reasons," said Al Irvine, vice president of engineering at SofTech.

"The first is that the price going down will simply result in more installations. But a major reason is that independent, third-party applications developers can sell the applications without requiring a licence from anybody for the p-System."

Software developers who use the p-System have apparently expected this move for some months; however, according to Irvine, the announcement was not made sooner because IBM required several months to finalise arrangements. "It didn't recognise the need for a runtime system early on," he said, "and once it did, it takes time for

IBM to do things." Now, IBM will be selling the runtime system through its product centres, and that endorsement is seen as significant by observer Winsor Brown, a Huntington Beach, California, consultant.

"Possibly the most significant portion of the announcement is the fact that IBM is picking up the p-System," Brown related. "The significance of IBM even bothering with the p-system when PC-DOS is so strong is intriguing; the significance of not picking Digital Research is striking. There may be a deeper motive (by IBM). But this does open things wide to applications developers."

The need for a runtime system on the PC has been great, according to John Tibbetts, president of the Datalex Co in San Francisco. Datalex develops p-Systems applications. Tibbetts said his company needed the p-System so badly that it developed its own, dubbed the Bubble.

• *Rory J. O'Connor is a senior writer, ISO World.*

Digital Research pushes standard

DIGITAL Research Inc is extending its efforts to establish its GSX graphics extension to CP/M as an industry standard. Eleven makers of graphics peripheral devices have signed contracts with DRI to develop device drivers to be included with GSX.

The 11 companies are Control Systems, Digital Engineering, Epson, Hewlett-Packard Co, Houston Instruments, Integral Data Systems, Okidata Corp, Orchid Technology, Plantronics, Frederick Electronics Corp, Printronix Inc, and Strobe Inc.

The contracts involve a minimal amount of cash, according to DRI vice president Fred Langhorst, sufficient only for the program "to make business sense". The key to the contracts is the agreement by manufacturers to make details of existing and new peripherals available to programmers at DRI and Graphics Software. The information allows the programmers to write drivers for the devices.

Previously, most graphics device drivers have been written by manufact-

urers, or by end users. Now, software developers can write graphics software using calls to the GSX "virtual device interface", which does not vary with hardware used. Peculiarities in hardware will be accounted for by the jointly developed drivers.

"The standard (interface) is defined by GSX," said Langhorst. "The drivers become an integral part of GSX. We get a bigger set of peripherals to offer our customers." He added that while not "all of the key players" have signed agreements, "it's just a matter of time" before they do.

DRI and Graphics Software, not the hardware makers, will be responsible for support of any device drivers developed under the plan, Langhorst said.

Unix system soon for Tandy 16

THE Unix operating system for the Tandy Model 16 has arrived in Australia and should be available soon. The system is based on Microsoft's Xenix and will provide the Model 16 with multi-user and multi-tasking abilities.

The core system, which will be free to all Model 16 users, has the modules to support a runtime environment. This includes configuration of the system, disk initialisation, TRSDOS to Xenix file transfer and a Cobol runtime module.

A Xenix development system will be sold separately that will include the full Xenix system, a C compiler and text editor. To run the full Xenix system, 512K RAM is recommended.

Multiuser implementations of Microsoft Basic and RSCobol will be released later this year. Fortran and Pascal will follow at the end of the year.

A single user Xenix system for floppy disk will be released after the multiuser system.

Mark Ursino, Microsoft's Xenix product manager, has predicted the Model 16 will become increasingly successful as a relatively low priced 68000-based Unix system.

It was the only Unix system being distributed through retail outlets and the upgrade path from the TRS-80 Model II to Model 16 capacity should ensure that the TRS-Xenix becomes a major operating environment, he said.

Logo breaks into business world

By Scott Mace

DIGITAL Research is entering the educational-software market with a version of the Logo language for the IBM PC.

Versions of Digital Research's DR Logo will also be made available for other machines that run CP/M, according to Gary Kildall, president of Digital Research.

The announcement represents the first major breakthrough in attempts to turn CP/M business computers into tools for education. Previously, Logo was available only on home computers — in several versions for the Apple II, as well as versions for the Radio Shack Color Computer and TI-99/4A.

Logo is suddenly spreading to other computers, though. In January, Mattel announced a Logo cartridge for its new Aquarius home computer; and Atari has announced that Logo Computer Systems Inc (LCSI) is implementing Logo for Atari's computers.

"We recognise a tremendous opportunity for Digital Research in the low-end computer market, and Logo is the first product to demonstrate our commitment to serving the needs of this new consumer market," Kildall said.

He said DR Logo includes all features of Apple Logo, the Logo implementation that grew out of the work done by LCSI. DR Logo offers increased memory capacity, however, and various utilities for programmers. "We've added quite a bit to it to make it a little more professional and easier to use," Kildall noted.

The DR Logo is aimed not only at children, but at business users as well. Kildall noted that Logo, which was developed by MIT professor Seymour Papert, grew out of the LISP (LIST Processing) language, from which much artificial-intelligence research has evolved.

Kildall believes business users can utilise Logo's powerful list-processing capabilities, as well as the more publicised turtle-graphics commands.

One adjustment Logo will have to make for the business world will be terminology. "You turn that turtle into a pointer, because businessmen don't work with turtles," Kildall said. "In effect, the turtle becomes a positioning device rather than an Etch-A-Sketch."

In a speech given before hundreds of people at CP/M'83, Kildall contended that Logo has various shortcomings that prevent it from becoming, for example, a replacement for Cobol. "It does open up a lot of new areas," he said. "We're not going to accept anything less than Logo, as far as the next generation of languages for home computing." In fact, Kildall implied that future versions of DR Logo could replace Basic.

Kildall said the Basic language "turns out to be a very poor approach to teaching someone how to use computers. In many cases, it's very limiting to a child.

"The introduction of DR Logo is the first in a series of products we are developing to make computers more accessible to people," Kildall said.

'In effect, the turtle becomes a positioning device rather than an Etch-A-Sketch.'

Logo aficionados will note a number of added features in DR Logo not found in the Apple, TI or Radio Shack Logos. Among these are:

- ☐ Larger work space. Blocks of Logo work space typically are measured in nodes, and Kildall said that the IBM PC version of DR Logo, which has 1 M-byte of disk space, offers 100,000 nodes, as opposed to 2500 for the Apple II. "The kinds of problems you can solve can be much more comprehensive," he said.
- ☐ Built-in help commands. These explain the Logo primitives (built-in commands) and provide examples of how they can be used. A full-screen procedure editor explains editing commands.
- ☐ Comments with programs. These comments explain individual operations and statements.
- ☐ Text windowing. Commands and editing can appear within a window on the user's screen so the text does not interfere with graphics. The location of the window is defined by the user. The version displayed at CP/M'83 also allowed users simultaneously to use a monochrome monitor to display text and a color monitor to display graphics. Kildall

said a toggle key will also let color-monitor users switch from graphic to list displays.

- ☐ Indentation of procedure statements. According to Kildall, even though other Logo packages show indented procedures in user manuals, many of these packages cannot accept indenting on the screen.
- ☐ Debugging aids. With these, the program can show the user what each program line is doing. Users can change variables and values at this point to observe their effects, then continue with the program execution.
- ☐ Upward compatibility with Digital Research's GSX (Graphics System Extension), a graphics protocol consistent with the emerging ANSI Virtual Device Interface (VDI) standard.

Kildall was introduced to Logo through John Allen of The Lisp Company of Los Gatos, California, which is developing a plug-in Logo cartridge for the Mattel Aquarius, a Z80 home computer. The Lisp Company was displaying its own Logo at CP/M'83.

Allen said the Aquarius Logo fits in 16K of ROM. The prototype displayed at CP/M'83 had six moving turtles on the screen, and Allen said the system can accept as many turtles as space allows.

A graphic example of the power of multiple turtles are the "toiling turtles" and "tiling turtles" to be included with the Mattel Logo. Toiling turtles are synonymous with normal Logo turtles, and tiling turtles can take on one of 256 possible shapes in an 8-pixel x 8-pixel block of color. These tiling turtles can create stunning animated graphics.

Digital Research will license Allen's firm to develop other versions of Logo for Z80 and 8086 computers. Unlike the IBM PC Logo, which was written in C, these other versions will be written in Lisp, another language The Lisp Company is providing on its own.

Allen said these versions of Logo will be suitable as general-purpose programming tools, unlike typical Logo implementations. "These will be small Lisps, in a sense," he said.

Allen also foresaw a Logo so powerful that turtles could simultaneously perform multiple tasks, such as initiating message-passing. ☐

• Scott Mace is a writer with Infoworld.

Chips may cut network costs

A PAIR of chips aimed at lowering the cost of local area network connections has been announced by Intel Corporation.

The chips are known as the 82586 Local-Area Network (LAN) Communication Controller and the 82501 Ethernet Serial Interface (ESI).

Intel, which is based in Santa Clara, California, said the pair provided full compatibility with the DEC-Intel-Xerox Ethernet specifications for the physical and data-link layers of the network.

"The 82586 was designed to lower the cost of LAN connection. We designed it with Ethernet in mind, but made its network/parameters programmable so that it could also meet the needs of other CSMA/CD applications," said Charles Gopen, marketing manager for Intel's data communications components.

The chips provided all of the required physical and data-link functions plus network management and diagnostics functions.

They therefore lowered the design and development cost of LAN equipment and reduced the cost of ownership by providing aid in managing and servicing the network.

Gopen projected that the price for the chip pair by 1985 would be about \$US25 in large quantities. Today's board-level controllers range in price from more than \$US2000 to just under \$US1000 depending on performance and features.

Gopen said the 82586 and 82501 promised to lower that cost substantially by replacing more than 80 integrated circuits.

He said the 82586 was designed to process outgoing and incoming packets practically on its own. The CPU could prepare many messages for transmission in shared system memory, "tell" the controller to get started, then go off and do other processing tasks.

It collected the necessary information from shared memory, prepared the packets and controlled their transmission without further CPU attention.

Gopen said Intel's 82501 was a combination line driver and receiver.

Serial data for transmission was Manchester encoded and driven onto the transceiver cable interface. Data received from the transceiver was filtered and decoded before it was passed to the controller. These were functions formerly implemented with half a dozen ICs or more.

In addition, the 82501 contained the system clock oscillator that was used for synchronising 82586/82501 activity and supporting a 10-megabit-per-second data transfer rate.

Gopen said the 82586/82501 chip combination, plus a transceiver, provided the full Ethernet physical and data

link functions. At the transceiver end, the 82501 provided a straightforward interface to an Ethernet standard transceiver cable. The host interface was via any eight-bit or 16-bit bidirectional system bus.

Only two connections to any standard eight-or 16-bit CPU were required — a channel attention line with which the CPU "woke up" the controller, and an interrupt line that the controller could use to get the host's attention.

Further information: Intel Australia Pty Ltd, Spectrum Building, 200 Pacific Highway, Crows Nest, NSW 2065. Tel: (02) 436 2744.

Boon for technical writers

By Michael Swaine

A STATISTICIAN friend recently bemoaned the fact that although professors all around her were writing papers with word processors on personal computers or via timesharing on large machines, she had to type her manuscripts.

Why? Because she is a statistician; because her papers are full of mathematical notation, with superscripts, subscripts, radicals, complex fractions and Greek letters. The current generation of personal computers and standard terminals for timesharing systems don't display such esoterica.

Intel Development Corporation has just released a VLSI (very large scale integration) chip that will allow more advanced display control. The 82730 is a text-handling coprocessor designed to work with any of Intel's 8-bit or 16-bit microprocessors as the central processing unit (CPU).

The chip runs concurrently with the CPU chip, fetching its own data and instructions from memory and executing them independently of the CPU. This means that it can manipulate and display text faster than a CPU-controlled display.

The chip also produces high-quality text via proportional spacing on the

screen, simultaneous subscripts and superscripts, split screens, virtual windows, dual cursors and smooth scrolling.

Intel expects the chip to be used in advanced terminals, dedicated word processors, personal computers, small-business systems and interactive composition terminals for typesetting.

Besides working with Intel's microprocessors, the 82730 can be used in bunches for higher display resolution, and can work with the Intel 82720 graphics-controller chip to blend text and bit-mapped graphics.

The 82720 handles high-level graphics operations, such as zooming, scrolling and screen partitioning, and like the 82730, does it without CPU intervention.

Intel also has just announced the availability of a multibus circuit board based on the 82720 graphics chip. It's called the iSBX 275 and it displays eight-color data on a raster screen. It can draw lines, arcs and circles, and sells for what Intel calls "the lowest price in the industry" (less than \$US1000).

Besides the 82720 processor, the board contains 32K-bytes of display memory. The resolution it provides is 512 x 512 pixels in black and white or 256 x 256 pixels with eight colors.

• *Michael Swaine is a senior writer with Infoworld.*

Telecom establishes supplier categories

TELECOM has established three categories of computer suppliers who want to connect their equipment to its network.

Category A suppliers will be able to certify equipment as suitable, category B will be able to connect equipment to data services as long as safety isolation equipment is used, and category C will require individual approval for all items.

Previously all suppliers who wanted to connect their equipment to Datelines had to submit their equipment for Telecom tests and approval.

Under Telecom's concessions costs and time will be saved, especially for category A suppliers who already include IBM, DEC, ICL, Data General and Honeywell.

Suppliers who want a category A rating must convince Telecom that they use internationally acceptable electrical safety standards in the production of their equipment.

About 60 suppliers have qualified for Category B.

Meanwhile Telecom is expected to soon approve 300 bits/sec auto answer auto dial modems for microcomputers.

Osborne, Electronic Concepts and Applied Technology all have modems at Telecom for tests.

Bulletin Board for Apple users

THE international Apple Core has distributed Bulletin Board software to all member user groups.

The Bulletin Board system was developed by the Washington Apple PI user group and given to Apple Core for distribution. While the system is configured for the DC Hayes Micromodem, unavailable in Australia, extensive documentation is included that will enable the system to be used with Telecom approved auto answer modems.

The system is a traditional bulletin board, supporting hello, help, meetings and message files. The maximum bulletin size is 10 lines of 39 characters. The system will support the uploading and downloading of files and a terminal program is included on the disk.

Apple Core also has released the first update to the Apple Technical Notes published late last year. These notes are an important source of technical information for Apple users. While much of the information already is available in

the user community, there is essential information about many of Apple's recent products, such as Pascal, Fortran and the Apple III that is not available anywhere else.

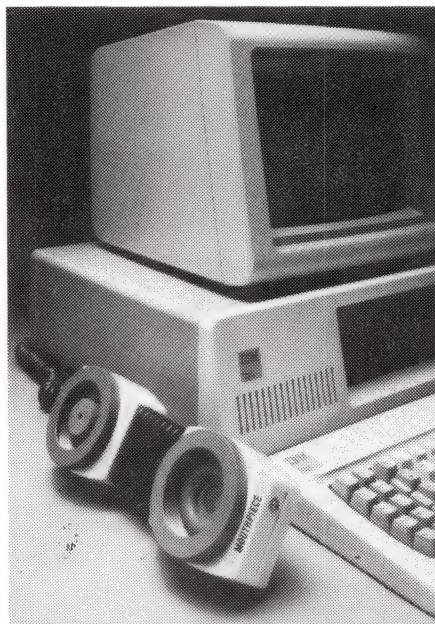
Further information: IAC director, Roger Keating, Box 448, Double Bay NSW.

Acoustic coupler is bit/char oriented

A Synchronous 700 Series acoustically coupled modem has been released by Electro Medical Engineering Pty Ltd.

This enhancement is available only with the 1200 BPS Half Duplex version for high integrity synchronous data transmissions over the switched telephone network.

The Synchronous 700 Series supports both bit oriented and character oriented protocols including IBM's SNA/SDLC and BSC. An added feature is that the series could be used asynchronously as the generated synch pulses would be ignored by the data terminal equipment, Electro claimed.



The Synchronous 700 Series acoustic coupler attached to an IBM PC.

For synchronous data communications via the phone, the data modems at each end of the connection must supply synchronised clock pulses to the data terminal equipment. This is achieved by a clock generator circuit to a standard 1200 BPS Half Duplex 700 Series acoustic coupler.

The clock generator board was mounted inside the coupler and required only a small amount of operating current for the necessary signals, Electro said.

To achieve synchronisation the clock generator sampled the receive data for a mark/space transition and then reset a ripple counter. A prescaled stabilised crystal oscillator was used to ensure the clocking pulses were in phase with the receive data.

Electro said that to support the V24 clocking signals a 12-wire curled cord must be fitted to the synchronous acoustic coupler. The previously unallocated grey and turquoise wires were now used for Receiver clock (V24 pin 17) and Transmitter clock (V24 pin 15) respectively.

Power could be supplied via the yellow and brown wires with +12V and -12V but the +12V supply must be able to provide at least 100 ma. Alternatively, a plug pack could be used to provide the necessary power.

However, because of the extra current drain by the clock generator circuit Electro recommended a 12V plug pack instead of the 9V one suitable for standard 700 series models.

Further information: Electro-Medical, 69 Sutherland Rd, Armadale, Vic 3143. Tel: (03) 509 5844.

IBM opens comms net to PC users

IBM for the first time opened up the huge installed base of communication networks using the Binary Synchronous Communications protocol to its Personal Computer users by unveiling a combination hardware/software package that emulates 3270 devices running under BSC.

The company is more aggressively marketing its previously introduced 3270 Synchronous Data Link Control protocol, but BSC is the most commonly used protocol on IBM mainframe-based communications networks.

The BSC Adapter is the hardware portion of the emulation package. It provides the ability to attach the Personal Computer to host systems or other Personal Computers via switched or leased-line networks using BSC protocols.

The adapter is installed as an option in one of the five system expansion slots and operates at up to 9600 bit/sec.

Single-user TRS-80/12 can be upgraded

TANDY Corp has introduced the TRS-80 Model 12 small business computer, in a single-user machine which can be upgraded to Tandy's multi-user Model 16.

It should be released in Australia in September.

The computer features 80K-bytes of main memory, expandable to a maximum of 512K-bytes, and may be ordered with one or two 1.28M-byte double-sided, double-density disk drives.

A Tandy spokesman said the new TRS-80 which will retail in the US for \$US3199 with one drive and \$US3999 with two, is one of six new products the company is introducing this year.

Versions 2.0B and 4.2 of Tandy's TRS-DOS operating system support the Model 12. For higher performance processing, a 12M-byte hard disk subsystem is sold separately in the US at a retail price of \$US7000. The Model 12 reportedly can run software created for the Model 2.

Further information: Tandy Corp, 280 Victoria Rd, Rydalmere, NSW 2116. Tel: (02) 638 6633.

Sord M23P supports portable applications

MITSUI Computer Systems has announced the M23P, a Z80A-based member of the Sord family that offers some interesting innovations designed to support portable applications. The unit weighs only 7.5 kg and uses dual integrated 3in microdisks. The machine supports color graphics using a dedicated Z80 and extra 128K of graphics RAM.

An optional LCD display and battery pack turn the machine into a portable unit that will fit into a briefcase.

It supports an enhanced version of Pips, Japan's response to Visicalc. Pips is a suite of integrated programs incorporating a database management system and a spreadsheet, similar to the spreadsheet software starting to appear on the US market.

Mitsui also announced the release of the Sord M5, a Z80A based home computer that is expected to retail for under \$A400. The system uses cartridges and a domestic color TV as the display.

Further information: Mitsui Computer Systems, 1-3 Rodborough Rd, Frenchs Forest NSW 2086. Tel: (02) 451 7711.

T100 has color

TOSHIBA has introduced the T100 personal computer, a CP/M machine with Z80A processor and 64K RAM. Color graphics with a resolution of 640 x 200 are supported.

It has most of the features that the Japanese consider important in a personal computer, including cartridges for applications software and memory expansion and a LCD display so that the machine can be used as a portable.

Toshiba will market the complete T100 system with VDU, dual floppy drives and printer for less than \$A4500.

Further information: Toshiba (Aust) Pty Ltd, 82-94 Talavera Rd, North Ryde, NSW 2033. Tel: (02) 887 3322.

Sigma Data adds highend OKI/30

SIGMA Data used the First Australian Personal Computer Show in Sydney as a launching pad for its Sigma/OKI Model 30.

Sigma chairman, Michael Faktor, predicted that the machine's long list of features and \$A6550 price tag would carve it out a significant niche in the Australian market.

He said it would complement previously released OKI Model 10 and Model 20.

The Model 30 is packaged as a compact all-in-one desktop unit.

Faktor said its features included dual micro processors with 128K memory expandable to 256K-bytes, high resolution graphics in eight colors on an attractive 12in monitor (640x400 pixels), the CP/M industry standard operating system, and an enhanced Basic language allowing many additional hardware functions.

He said twin 8in double-sided, double-density disk drives, provided 2M-bytes of online storage capacity, and an inbuilt bi-directional printer operated at 80 char/sec.

A serial RS-232C interface would permit communication with other personal computers or mainframes.

Faktor said optional extra hardware included a 128K-bytes expansion memory board which enlarged memory to a total of 256K-bytes, ROM cartridge, light pen, various interface cards, A/D and D/A converters and a universal circuit board for custom interface design.

Further information: SigmaData Corporation Pty Ltd, 157 Walker St, North Sydney, NSW 2060. Tel: (02) 436 3777.

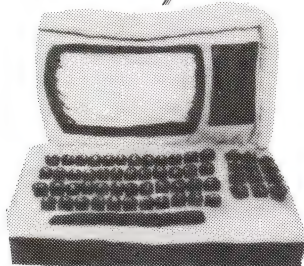
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RICA
1983 Finalists

A3 plotter said to halve price

TOKYO Data Systems has unveiled the Iwatsu SR-6602 plotter in Australia.

It is an A3 size flat bed plotter available in both single pen and six pen versions.

The unit comes with an intelligent microprocessor controlled interface.

A company spokesman claimed the price of below \$A2000 was half that of comparable products.

He said the unit could plot on any paper size up to A3 with a maximum plotting area of 385mm by 270mm.

The paper was held in place by magnetic strips.

The spokesman said there were three different physical interfaces available for the unit — centronics parallel, RS232C serial, and IEEE488 GP-IB.

The plotter could draw solid, dashed, dot dashed, and double dot dashed lines with dashes and spaces of any specified size.

Single commands were available for plotting character strings, axes including scales, circles, circular arcs, eclipses, and spirals.

Separate X and Y axis scale factors could be set to apply to the operation of all plot commands.

Further information: Tokyo Data Systems, 84-86 Pacific Highway, St Leonards, Tel: (02) 439 6533.

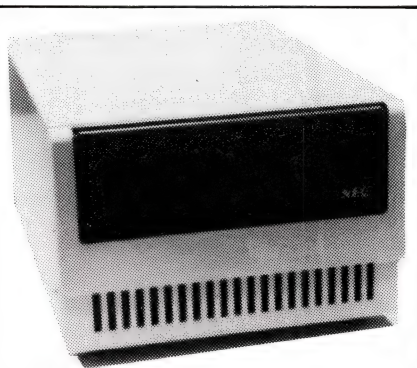
Sprint II offers letter quality

SIGMA Data Corporation has released a line of low cost daisywheel printer terminals from Qume called the Sprint II series. The printers are designed for use with micro, mini and small business computer systems and offer letter quality reproduction.

All Sprint II products offer condensed, microprocessor controlled single-board electronics for increased reliability.

Receive-only (RO) terminals in the product line, feature a standard RS-232C interface. A range of plug-in interfaces are available including, Qume Parallel, Centronics Parallel and IEEE 488.

Further information: Sigma Data Corp Pty Ltd, 157 Walker St, North Sydney, NSW 2060.



The 9.3M-byte hard disk unit for the NEC Advanced PC.

Disk unit for Advanced PC

NEC Information Systems Australia (NECISA) has announced the release of a 9.3 Megabyte capacity Winchester hard disk unit for its Advanced Personal Computer.

Up to two of the externally mounted hard disk units can be connected to an APC for up to 18.6 Megabytes of storage, according to the company.

NECISA marketing manager, Jolyn Bone, said: "The hard disk, high capacity Winchester drive options will continue to enhance the response in Australia to the APC."

"We are rapidly increasing shipment levels from Tokyo."

He said the key features of the APC were the integrated 2M-byte floppy storage, and its graphics capability.

Operating system support for the hard disk would initially be provided under CP/M-86 which would divide the physical disk into two 4.7 Megabyte logical drives, Bone said.

MS-DOS operating system support would be provided with the release of Version 2 of MS-DOS. The 1M-byte high capacity floppy disks provided with every APC would be used to back-up the hard disk.

The hard disk is expected to have a pre-tax recommended retail price under \$A4000.

Further information: NEC Information Systems Australia Pty Ltd, 99 Nicholson St, St Leonards, NSW. Tel: (02) 438 3544.

Toshiba dot matrix has two speeds

TOSHIBA has launched a letter quality dot matrix printer.

The P1350 printer could operate in draft mode at 160-10 pitch char/sec, or letter quality mode at 100 char/sec.

A 24 pin head was used to produce letter quality print and high resolution graphics with a 180 x 360 dots per inch resolution, Toshiba said.

The printer supported a proportional letter quality font and a draft mode font. Two additional font cartridges could be plugged into the printer and font selection was under software control.

The Holmes Computer Company has developed a range of Fontpak's for the Toshiba printer, including Helvesan, Messenger, Italics, OCR B and APL. Custom fonts and company logos could be prepared.

A \$3 million order for the P1350 printers by the ATAC group of companies has helped Toshiba's marketing drive get off the ground.

Retail price of the P1350 printers will be \$A3190.

Hard disk system in three sizes

THE US based Davong Systems has reported sales of \$US6.5 million after one year in the microcomputer auxiliary storage market, and president, David Hong, confidently predicts sales of \$30 million this year.

Davong has designed its own controllers, power supplies and other key components.

Its primary product is the Universal Winchester Hard Disk System for IBM PC, Apple II, IIe or III, and Osborne 1. The system can be configured for any of these computers with the appropriate host adapter, interfacing cable and software. Single drive systems are available in 5, 10 or 15M-byte (formatted) capacities, but up to three "slave" drives can be added for up to 60M-bytes of online data storage. These systems are available with 18M-byte streaming cartridge tape backup.

Multi-OS™ software enables use of IBM DOS, Pascal and CP/M on the same IBM PC or Apple. All three operating systems can reside on one Davong

hard disk system. Software utilities simplify initialisation, copying, backup, restore, diagnostics, file recovery, volume management, and configuration of boot options. Variable hard disk configuration enables the set up of multiple volumes in any size and number, limited only by the operating system selected. Davong offers several standard selections, as well as complete custom configuration.

Davong invested \$US1 million in research and development last year, and Hong promises a host of new products including a broader range of hard disk drive capacities and computer interfaces, improved memory and I/O boards, and networking solutions.

Imagineering is the Australian distributor for Davong hard disk drives. The drives are available with 5M-butes, 10M-bytes and 15M-bytes capacity for the Apple II and IBM-PC.

Further information: Imagineering, PO Box 4601, Sydney, NSW 2001. Tel: (02) 358 3364.

Keyboard converts games machine



This keyboard can convert an Atari 2600 VCS into a home computer.

FUTURETRONICS has released a computer keyboard that transforms the Atari 2600 VCS into a home computer.

The keyboard unit fits on top of the VCS unit, converting the game machine into a color computer with Basic in ROM and 8K RAM. An expansion port can support extra memory and a variety of peripheral units.

Software titles, emphasising home management, education, personal development and games are under development for the VCS with the new keyboard.

The unit is being marketed as "My First Computer".

Further information: Futuretronics, 1076 Centre Rd, South Oakleigh, Vic, 3167. Tel: (03) 579 2011.

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*See Verbatims's Warranty Policy for details.

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The mouse that rolled

The mice are scurrying out of the closet and to optimise performance, manufacturers are designing software systems around this new user interface.

By John Markoff

FOR years, the lowly digital mouse has languished in the backwaters of computer-science research.

Then, in the wake of the introduction of the Apple Lisa computer, *Time* magazine proclaimed 1983 "The Year of the Mouse", and the Wall St. Journal decided that the little fellow was likeable even by computerphobic business executives.

Invented by computer scientists Doug Englebart at SRI International in Menlo Park, California, in 1964, the mouse is a hand-held input device that is designed to control the position of a pointer or cursor on a computer screen.

During the last two decades, mice were used first with interactive work stations that were attached to giant mainframe computers and, more recently, as pointing devices integrated with a series of advanced personal computers in corporate and university research centres.

The mouse originally gained notoriety when Xerox Palo Alto Research Centre (PARC) chose it to be part of its mini-computer user interface. Xerox researchers were building a series of experimental user interfaces as part of research leading toward the development of the Dynabook, a generalised information tool.

They turned to the mouse because research results, first at SRI and later at Xerox PARC, had shown it to be the superior pointing device.

When coupled with high-resolution displays, the mouse permitted systems designers to create a largely "visual" computer-system interface. Rather than "remembering and typing", users could "see and point".

Early in their work, researchers learned that the mouse was a more efficient and powerful way to interact with a computer.

The first mouse was built at SRI in 1964 at Doug Englebart's Augmented Human Intellect Research Centre.

William English, now director of international marketing at Xerox's Office Systems Division, was working with

Englebart's group, and he built the first SRI mouse.

He remembers that the first mouse, unlike its advanced descendants, was a large and crude device that had wheels that were connected to potentiometers.

In other words, the first mouse was an analog device. Today, its successors are mostly digital. Nevertheless, the first SRI mouse did permit Englebart to move a cursor on a CRT screen and, more importantly, when the mouse was integrated with software, researchers could bypass the keyboard and use the mouse for most interaction with the computer.

The 1960s saw a flowering of computer science research as a result of large funding increases from the Pentagon's Advanced Projects Research Agency (ARPA). According to English and others — such as Alan Kay, Atari's chief scientist — several ideas that are only now being put into practice on commercial systems were first invented during this creative period.

Doug Englebart was a computer scientist less bound than others by traditional ideas.

During World War II, while he was in the Philippine jungles, he happened to run across a copy of the *Atlantic Monthly* in a Red Cross hospital.

The magazine contained an article by physicist Vannevar Bush, entitled "As We May Think", that was written before the advent of the modern digital computer. Bush's article speculated about an information system he called "Memex", which was designed to store and recall associative trails through data structures.

The ideas contained in his article, based then on optical and microform technologies, served as the basis for research done by computer scientists in the 1960s and led to personal computers that use mice, such as the Xerox Star and the Apple Lisa, which are appearing as commercial products in the 1980s.

For scientists such as Englebart, Bush's ideas served as inspiration.

"In 1951, I sat down to think about what my goals should be," Englebart says, "and it dawned on me that the fundamental issue facing individuals in society was the limit to complexity of problems they could deal with.

"I decided that if I could help design tools that would manage the complexity, it would be an important contribution."

When Englebart began his research,

there were only four computers in the US. He became interested in interactive systems that could "augment" human intelligence. He sees the mouse as only a small part of the kind of system he was trying to create.

"You sort of wince at the term mouse. When we were working with these things in the lab, we never dreamed the name would catch on," he says.

Englebart is also bemused by the recent celebrity status that his invention has attained. He worries that people have become too caught up by the flash and the glitter and, as a result, may be ignoring what he feels are more significant elements of his work.

"There is a whole bunch of work that we did with files and moving around in data structures at SRI that didn't get through," he says.

Englebart is also sceptical about the recent icon fad, popularised by the Star and the Lisa.

"The problems you face with icons are the same that the ancient Egyptians faced with hieroglyphics: they're fancy and easy to use, but they're also limited. You have to develop a new icon for each new object."

When Englebart's group disbanded in the late 1960s, research using the mouse as a pointing device was carried on at Xerox PARC, where several experimental systems were created.

To obtain its mice, Xerox went to Jack Hawley, an independent designer and self-described "great inventor" based in Berkeley, California. Over the next decade, Hawley provided the researchers with a continual supply of mice.

Hawley's first mice were scaled-down versions of the original SRI wheeled mice, but in 1975 Xerox contracted with Hawley to design a ball mouse, which rolled on a single ball bearing. Xerox purchased mice from Hawley until 1981, when the Star work station went on the market and Xerox began producing mice internally.

Since then, Hawley, who might be described as the foremost practitioner of the art of "mousery", has set up the Mouse House, a division of Hawley Laboratories, and he now claims he can manufacture 25,000 to 30,000 mice a year.

When it comes to the world of mice, Hawley has a dry wit.

"I guarantee my Hawley X063X mouse for one year for both parts and labor or

100 miles, whichever comes first," he says with a chuckle.

Hawley points out that his mouse has, in tests, run as far as 300 miles.

Of course, it doesn't end there. Hawley claims if all of his mice were laid tail to tail, they would cover a distance equal to the height of more than 55 Washington Monuments.

He calls his mouse the Hawley X063X Mouse (to decipher this, you have to read it upside down).

When Hawley first got into the mouse-making business, he was virtually the only game in town. Today, however, there is a horde of new entrants into the arena, and more are sure to follow.

Hawley sniffs at some of his new competition. "There is an infusion of pseudo-mice that could also be described as poor-man's graphics tablets," he says.

What upsets Hawley is a new breed of "optical" mice from Mouse Systems Corporation in Sunnyvale, California, and the USI Corporation in Brisbane, California. These optical mice move the cursor on the screen as the user moves the mouse on a reference grid pad that sits on the desktop.

Says Hawley: "Englebart laid down specifications for mice that freed the operator from constraints."

The source of the controversy is whether the mouse should obtain its x and y references from its own motion or from a fixed outside grid.

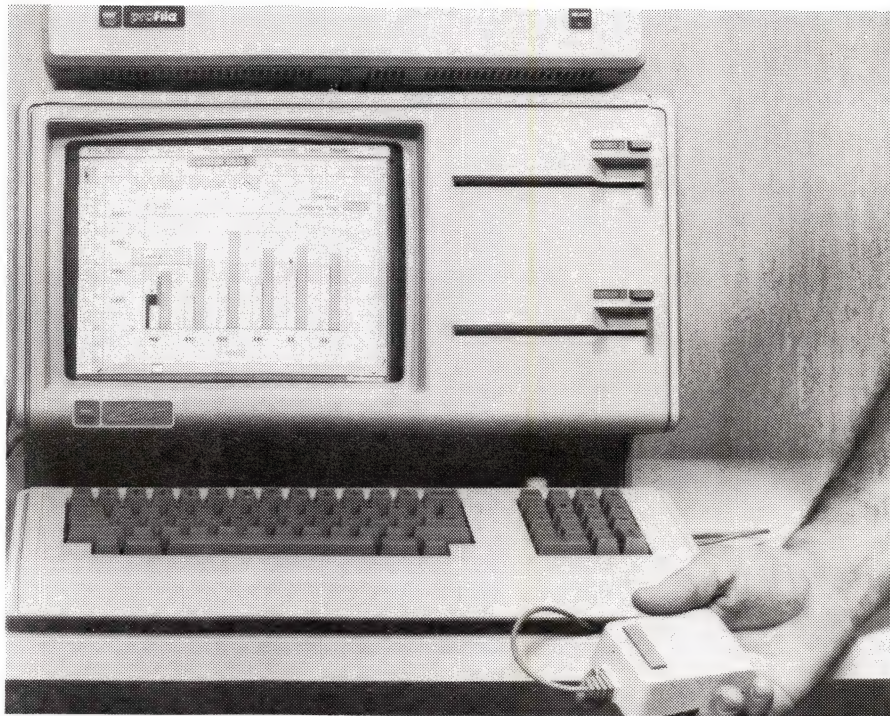
Responds Steve Kirsch, president of Mouse Systems Corporation: "I showed my mouse to Englebart, and he really liked it."

"No one has done any research on the subject," he continues. "Many people who are familiar with digitisers like my mouse better because they are familiar with it."

Actually, the controversy between true mice and what Hawley calls pseudo-mice seems to be only one of several that is besetting the mouse-making community today.

Mouse makers argue over whether mice should have one, two, three or four buttons, and they also argue over the shape of the mice — rectangular, sloped up in front, sloped down in front, not sloped at all or even turtle shaped.

In fact, the days of the mechanical mouse may be numbered, and optical mice may be the wave of the future. Although some of the optical mice today



The mouse is a major component of Apple's Lisa. It is used to provide users with a fast, intuitive pointing device and to position the cursor on the screen.

require a special surface to read, in the future they may be as flexible as their mechanical cousins. (Mechanical mice roll on a surface; optical mice actually read the surface.)

Several years ago, Richard Lyon, a researcher at Xerox PARC who has since moved to the Fairchild Corporation, designed an optical mouse that used custom semiconductor circuitry. Lyon's mouse could read virtually any contrasting surface (even the phone book), and it behaved in the same fashion as Hawley's mechanical mouse.

Xerox has not announced any plans to market the optical mouse, however, and it is still making its own version of the Hawley-Xerox Mouse for the Star personal work station.

Kirsch's mouse functions somewhat differently. Two LED light sources inside the mouse shine down onto the two-color grid of lines and then reflect back up through a simple lens, where they are ultimately detected by a four-quadrant sensing device.

Kirsch smiles when he shows off his invention and says, "it's all done with mirrors".

There is also another type of hybrid mouse on the market. Both the Depraz, or "Swiss" mouse sold by Logitech of Palo Alto, California, and the Apple

mouse, recently introduced with the Lisa computer, are combination optical and mechanical mice. They sense motion mechanically and then translate the movement optically.

The Apple mouse has stirred up controversy in the mouse world because it has only one button.

The original Xerox Hawley mouse used by Smalltalk researchers at Xerox PARC employed one button for selecting a particular function and used the other two buttons for displaying particular menus. Apple decided that this was too complicated for computer novices who would continually find themselves trying to remember which was the right button to press.

Bill English remembers trying unsuccessfully to convince managers of the Xerox 860 project to include the mouse when they introduced the system.

"They just weren't personal users," he laments.

Now this is changing, and the mice are scurrying out of the closet. After the mouse-driven, low-priced Apple Mac-Intosh is introduced later this year, it may finally be true that 1983 will become "the year of the mouse" □

• John Markoff is a senior editor with *Infoworld*.

NSW Education Dept runs into difficulties

THE NSW Education Department has continued to experience administrative problems with the establishment of a support structure for computer education in schools.

At the beginning of the year steps were taken to establish a computer education unit within the department. The intention was to second a small group of teachers. Barry Smith, who had been attached to the Education Commission, was to be given responsibility for the unit.

The unit has now been in place since the beginning of February but has been restrained from any acknowledgement by the problems that the department administrators have had in establishing the financial and resource base for it.

Deputy director general, George Conomy, said: "It takes time to establish the unit. Funding had to be organised for a considerable quantity of equipment". He said it would be located on the top floor of the DSP literacy centre at Erskinsville Public School.

Continual problems with the program have been attributed to the lack of any real support for computer education at senior levels in the department. The middle management of the division of services is considered responsible for the appalling performance of the division in providing support for computer education activities.

Computer educators have expressed concern at the lack of support from the department. Comments about the disappointing quality of the people who have been seconded to the unit have been moderated by the urgency educators have attached to the establishment and operation of the computer education unit.

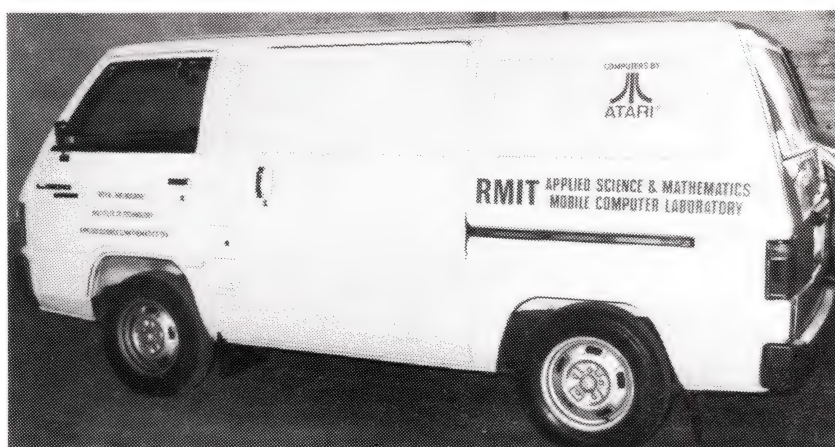
George Conomy said he had expected the unit to be operating well before the end of first term.

British increase program funding

THE British Education and Science Department has increased funding for the Microelectronics Education Program (MEP) by an additional \$A18 million. This has ensured that the program will continue to operate until 1986.

Much of the ongoing effort will be directed at software development and special education applications.

The consultancy unit that is co-



The Royal Melbourne Institute of Technology mobile computer laboratory.

Atari makes late market entry

ATARI microcomputer distributor, Futuretronics, has made a belated entry into the educational market.

Colin Macpherson has been appointed to manage the entry of Atari, which has had considerable success in the US educational market, into Australian schools.

The main thrust of the program will be the launch of the Atari's Schools Project (ASP).

The ASP will involve a variety of support activities based on an offer of Atari hardware and software to schools at discounted prices. This practice has become the standard feature of educational marketing campaigns with offers last year from Apple, Tandy, Commodore and Applied Technology.

The project has been active in Victoria, supporting Royal Melbourne Institute of Technology pilot studies by teachers and educators, donating

equipment for the RMIT mobile computer laboratory, supporting the activities of computer education groups.

Futuretronics will sponsor an international speaker from MECC — one of the largest educational users of Atari computers — for the Australian Computer Education Conference in May.

The ASP intends to set up an evaluation and marketing scheme for Australian educational software and to import and review educational software.

Futuretronics has donated 10 Atari 800 computers, with disk drives and printers, to the Melbourne Institute of Technology for a mobile computer van. The van will be used to give students and teachers access to computer equipment. The program has already been heavily booked by schools who do not have access to computer equipment.

ordinating the establishment of the British Government backed information technology centres has begun to evaluate and promote 16-bit microcomputers that support Unix.

Their enthusiasm and desire to show that Unix is not just a playground for technical programmers, but a user friendly, productive operating system parallels similar feelings in the Australian Department of Science and Technology. It is becoming involved in the support of local microcomputer manufacture.

The British consultancy unit also has approved the use of micro-Prolog as an educational aid. Prolog has been promoted by computer scientists as an

important educational language, but has few devotees in Australia. But the growing realisation that Basic programming has little to do with computer awareness or literacy should promote interest in languages like Prolog.

Angle Park order

THE Angle Park Computing Centre in South Australia has placed an order for Lisa, the new computer from Apple.

A spokesman for the centre said Angle Park had followed a policy of making important advances in personal computer technology available to teachers.

Logo is so much more than just a language

By Tony Adams

LOGO was developed in the late 60s at Bolt, Beranek and Newman, a commercial think-tank in Boston. The development group included Wally Furtleigh, Seymour Papert, Cynthia Solomon and Bob Bobrow. The essential idea of this work was that it should be suitable for children and other computer novices, yet be a language for learning and problem solving, rather than one for expressing known mathematical formulas in a computer program.

The first implementations of Logo were developed on large scale computers quite unsuitable for school use. The features brought into these early versions were those of Lisp, a language developed a number of years earlier for artificial intelligence research. This connection was not accidental. The designers of Logo were predominately artificial intelligence (AI) workers and saw Lisp as a suitable vehicle for the basis of an educational language. They argued that learning to program should be about the modelling of ideas, where the child was an active agent, becoming expert in the expression of ideas, and learning about learning itself.

Unlike other languages, the idea of debugging was not seen as a negative thing but rather a central part of the process of learning. The use of Lisp as the model on which Logo was built, not only gave a powerful means of expressing concepts, but took Logo away from the arena of mathematical programming populated by Basic and Fortran. But it should be stated that most mathematical problems can be programmed more easily in Logo than either Basic or Fortran.

Marvin Minsky, one of the fathers of AI put it this way: Logo encourages a "how can I make myself better at it" approach rather than "the helplessness of — "I got it wrong therefore I am no good at it."

By 1970 it could be argued that Logo had demonstrated its use as an educational tool with both children and undergraduates. It was, however, hampered by crude graphics on printing terminals

and the cost of equipment. The designers reasoned that the latter problem would be solved in time, and 12 years later they would be proved correct.

In the early 1970s Papert brought to Logo the ideas of turtle graphics, embodied first in a robot turtle and later in a graphics figure on a TV screen. This development was not only extraordinary — just in the idea of a child programming a robot — but in the simple and elegant set of commands, which when embodied in Logo produced a language of great power as well as simplicity.

Anyone who thinks complete packages of good educational software can be developed by an occasional group in weeks or months is wrong.

The philosophy of Logo was, in 1974, expressed more or less as follows by two workers (Borner and Brady) at the University of Essex.

- An interesting problem domain which doesn't rely on students having extensive formula knowledge from some other discipline.
- An obvious program trace (the turtle trail) which aids debugging, is a primitive measure of efficiency and so on.
- It encourages the notion of a process as a representation of a solution to a problem.
- Its primitive commands are simple to understand being defined purely in terms of action in the problem and not alternative to the internal state of the machine (perhaps the great intellectual leap of Logo).

The suggestion that is obviously made by the above points is that like Pascal, Logo is not a language to be used apart from its encompassing philosophy. Basic has no philosophy at all. But for its time (mid 1960s) it was a huge leap forward, enabling students to solve simple problems with a simple language. It was not, however, a strong enough intellectual underpinning to justify widespread use in education.

At MIT, Papert who acknowledges the importance of the five years he spent

working under Jean Piaget, was developing a philosophy based on the idea that children could build their own intellectual structure, without being taught. Logo was seen as a tool which allowed the child to explore, plan and program projects without structured teaching. The major school based project created by MIT was at the Brookline school near Boston. This project gave strong support to Papert's ideas, although there remain some questions of how much supervision (as against consultation) the teaching staff provided.

At Edinburgh under Jim Howe, Logo was placed within existing mathematics curriculum. The project concentrated on devising a Logo based methodology for teaching mathematics to secondary students. Unlike MIT, he used statistics to evaluate the project and yielded encouraging but not overwhelming results.

By 1980 funding for educational research was becoming politically unpopular around the world and groups such as Nat at MIT were being wound down. Furthermore the technology in the form of the personal microcomputer now existed for making the transfer from research tool to commercial exploitation.

The MIT group developed a strong subset of Logo for the Texas Instruments personal computer and a substantially full implementation for the Apple II. Many of the same people having moved from MIT developed a further and competing product for the Apple II to be marketed by Apple.

During November and December last year I visited the UK and the US and spent considerable time looking at where Logo was going. By the end of 1982, the Apple Logo software was a bestseller in the US, not only because it is a fine piece of software but because other vendors (including TI which already had Logo) hadn't got it act together. This has led to a situation in Australia and overseas of "badmouthing" of the language by vendors (and their users) who don't have access to Logo. There is room for debate on the use of Logo but as so often happens in computing, it has been brought down to the lowest of denominations — hardware capabilities.

(Continued next page)

• Tony Adams, a contributing editor, is author of a Logo text-book for teachers and a lecturer in computer sciences at the Royal Melbourne Institute of Technology.

Logo language

(Continued from previous page)

The position of vendors is changing quickly, too fast to be able to report accurately. Vendors which are likely to release Logo in the next few months (or have already) include, Sinclair (Spectrum), Commodore (64 and 128, but has it missed out with the Vic 20), IBM (PC), Atari (presumably 800), Tandy (color computer — already available), Acorn (BBC, but I am unsure of the likely date), and Apple (an integration of the TI graphics chip, with Sprites into its present product).

The Apple versions (both of them) will become default standards partly because many of the new versions are being written by members of the original MIT group and partly because of the existing market base.

Many of these new versions will not immediately add the more elegant graphics that would be possible with their hardware.

They will concentrate on using efficiently the more powerful keyboards available to them to eliminate some of the deficiencies of the Apple implementations.

An example of these trends is that the Commodore 64 Logo will not make use of the Sprites' features of the machine. It is also likely that more memory will become available as machines like the IBM PC enter the arena.

At the user level, Logo also is in a stage of rapid transition. Around the world, enthusiasts have set the pace in individual schools and school systems. This situation is changing to a more established role but not necessarily quickly. Software, textbooks and curriculum materials are slowly becoming available but until recently teachers had to rely on educational computing journals.

In addition both short courses, and credit courses in Diploma of Education programmes are also becoming available.

The major bar to the dissemination of Logo and other technological innov-

ations is the preoccupation of purchasing authorities with hardware. This preoccupation is at least 10 years out of phase with the rest of the computer industry and is sadly out of place. In 1983 we are surely at the stage of being able to specify hardware in terms of the software we want to be able to run.

Logo has taken 12 years in the development and anybody who honestly believes that complete packages of good educational software can be developed by the occasional leader and support programmer in weeks or months is, in my view, wrong.

The Atari organisation with Alan Kay (the creator of Smalltalk) and Cynthia Solomon is also looking to the coming years. Atari also has school based projects being developed with Logo. Throughout the US informal support groups such as the Young People Logo Association are being formed.

Next month I will describe the Boxer system and discuss some of the issues that are important in the development of new education languages.

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(Continued next page)

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Rapid Access Market

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Pinpointing products in the marketplace

AN international system for registering and identifying microcomputer software products has been introduced by Technique Learning Corporation, a member of the Oceana Group of publishers in New York.

Called the Universal Software Market Identifier (USMI™), the system provides a uniform means for identifying microcomputer products in the marketplace. USMI™ registration is available to software publishers without charge.

"There is no comprehensive information source in this industry. Everyone is too busy keeping up with an explosive growth rate," said David Cohen, president of Technique Learning, who developed the system after spending hours trying to get his software dealer to identify publishers and order the right product.

"The amount of software introduced in the marketplace on a daily basis by both established and new publishers dictates the need for a flexible classification system for software products, as well as a comprehensive information directory of commercial software sources."

Cohen said the USMI™ numbering system on all catalogues, price lists, ads, packaging and disk labels would provide a common point of reference for everyone involved with a software product — publishers, distributors, retailers, and consumers. It would give retailers easy access to software sources, simplify cataloguing, ordering, record-keeping, inventory and warehousing, and help streamline the complicated book-keeping now required to process royalties.

He said the USMI™ system would capture a maximum amount of information about software products by using several separate codes to identify the specific version of a specific product published by a specific company.

The system works as in Figure 1.

The first five digits, assigned by Tech-

Software Publisher	XXXXX (1)
Software Package and Version	XXXXX (2)
Specific Microcomputer Model	XXX (3)
Minimum Hardware Configuration	A (4)

Figure 1: How the Universal Software Market Identifier works.

nique Learning at the time of USMI™ registration, would identify the software publisher. The second five digits would identify the individual product. The third grouping would identify the specific model microcomputer (three digits) for

which the software package was created, and the minimum hardware configuration (a letter) required to run the particular program.

Cohen said Technique Learning also would publish a series of directories for the microcomputer industry.

The USMI™ Market Directory would be a trade book listing all USMI™ registered software publishers.

The first comprehensive listing of all commercially available microcomputer software products would be published in a series of directories for the business, professional, home entertainment, and educational fields under the title *Software in Print* — 1983.

Further information: Technique Learning Corporation, 40 Cedar St, Dobbs Ferry, New York, 10522.

Vendor courses for users

TRAINING courses for microcomputer users have become an important part of the marketing and support strategy of computer companies.

Three Sydney based companies have established extensive programs of workshops and courses for microcomputer users.

The Computer Shop

The Computer Shop has been conducting successful Apple courses for the past year. The courses are aimed at first time users and educators using the Apple and IBM-PC computers. They are oriented to a hands-on approach with a maximum of two students per computer.

The courses usually run for four sessions and cover introduction to the computer, using applications software and Logo.

The Computer Shop is at 74 Parramatta Rd, Annandale, NSW 2038 Tel: (02) 517 2999.

Wiser World

Wiser Laboratory, distributors of

Microsoft software, has established the Wiser World Learning System. Wiser World will offer courses introducing users to microcomputers, operating systems and application software.

Courses will feature hands-on activities and will be from three to six hours long.

Wiser World is at 21 Tepko Rd, Terrey Hills, NSW 2084. Tel: (02) 451 1490.

The Sigma Institute

Sigma Data has established an educational body to run courses for personal computer users. The institute has prepared an extensive program of day and evening courses designed for users of small computer systems.

It concentrates on the CP/M operating system and applications software that runs under CP/M. Current courses include, Wordstar, SuperCalc, Basic, Fortran, Cobol an introduction of computers.

Sigma Institute is at 157 Walker St, North Sydney, NSW 2060. Tel: (02) 436 3777.

Japan's answer to Jobs and Wozniak

By Brad Schultz

WHILE Basic was being implemented on the first 8-bit microprocessor, while Gary Kildall was polishing the first version of CP/M, while Steven Jobs and Steven Wozniak were building the first Apples, a young man was struggling in Tokyo to get his fledgling company out of the red.

In those heady years of 1974 and '75 as the US microcomputer industry was being born, Takyoshi Shiina was battling the odds in Japan to get his Sord Computer Systems Inc off the ground.

How Sord wound up as the fastest growing of 600,000 Japanese companies in the past five years is the subject of *The Flame from Japan*, a 102-page book by Takeo Miyauchi.

After a stint as a salesman of Digital Equipment Corp computers in Japan, Shiina invested his \$A1800 life's savings to found Sord in 1970. The company now has branches in Australia, Europe and US and draws most of its revenues from sale of micros featuring the Pan Information Processing System (PIPS) software package.

Although educated as an electrical engineer, Shiina excelled as an entrepreneur and salesman. As Miyauchi tells it, Shiina persuaded a few brilliant technical and marketing experts to leave well-paying and very promising positions with major Japanese corporations for jobs with his organisation — which could scarcely meet a payroll and was close to bankruptcy until the mid-1970s.

The staff often lived where they worked, sleeping on the floor. Some Sord people once left the premises long enough for a burglar to ransack offices in a vain search for anything worth stealing. Peeved at turning up nothing, the burglar reportedly defecated over important design papers. On discovering this, a Sord engineer told his shocked colleagues: "We're in luck, our work has been fertilised."

The first Sord microcomputer was based on the original 8-bit microprocessor, Intel Corp's 8008. According to Miyauchi, this 1K-byte machine was developed in 1973 although no operating system or programming language was available to run on it.



TAKYOSHI SHIINA — was in luck when his work was fertilised.

Success in microcomputer sales finally came when Sord obtained more powerful chips, a means of mass storage and PIPS, a business-oriented graphics that was something of a precursor to the far more famous Visicalc.

Sord took a novel approach to mass marketing of micros with establishment of "Pips Inns" — franchise outlets featuring an exhibition hall, training centre and store.

Sydney has a Pips Inn at Circular Quay in Sydney.

Miyauchi reports that the inspiration for these inns came from the McDonalds chain of hamburger stores.

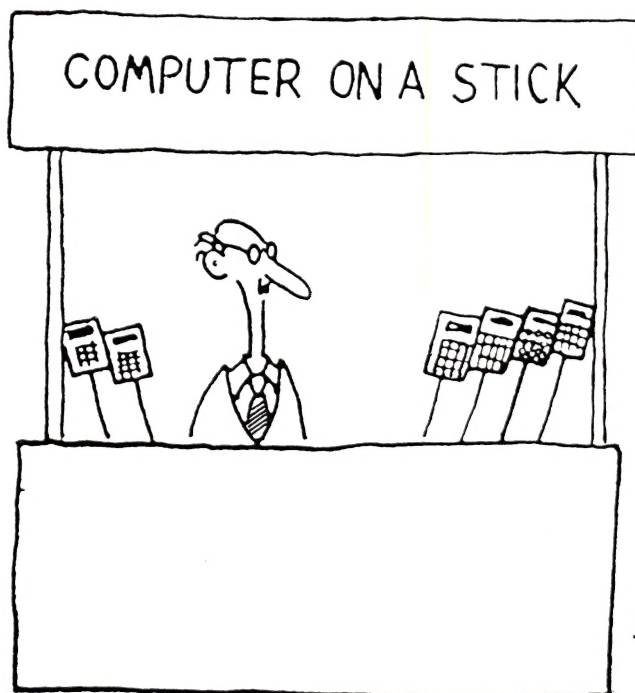
Sord's first effort to penetrate the US market was nearly disastrous. Shiina allowed a Nevada businessman to hold 51 per cent of Sord USA Corp, which appeared to land many orders but failed to provide the parent company in Tokyo with revenues or even records of transactions.

Sord now sells to the US through a different organisation. European customers are served by Orange Computer Products based in Ireland.

"Orange" is an intentional jibe at "Apple", says Miyauchi.

The Flame from Japan presents an interesting picture of an Asian entrepreneur in microcomputing. It is published by PIPS World Inc, a Sord subsidiary, and is as consistently upbeat as one might expect from a book profiling its own publisher.

The book can be ordered for \$US8 from PIPS World Inc, Watanabe Building, 3-37 Sakumu-cho, Kanda, Chiyoda-ku, Tokyo, or inquire at a Sord distributor. □





HOT LIST

THIS MONTH
LAST MONTH

ENTERTAINMENT

1	2	Choplifter • Broderbund • AP, AT
2	9	Choplifter • Creative • VIC
3		Synthesound • Hes • VIC
4	3	Castle Wolfenstein • Muse • AP, AT
5		Serpentine • Creative • VIC
6	5	Outworld • UMI • VIC
7		Crossword Magic • L & S • AP, AT
8	19	Apple Panic • Creative • VIC
9		Astro Blitz • Creative • VIC
10	1	Frogger • Sierra On-Line • AP, AT
11		Ultima II • Sierra On-Line • AP
12	29	Satellites & Meteorites • UMI • VIC
13	15	Flight Simulator • Microsoft • IBM
14	4	Cloudburst • UMI • VIC
15	21	Knight Of Diamonds Scenario 2 • Sir Tech • AP
16	6	Wizardry • Sir-Tech • AP
17		Flip Out • Sirius • AP
18		Wavy Navy • Sirius • AP
19	28	Wayout • Sirius • AP
20	10	Temple of Apshai • Epyx • AP, AT, IBM
21	13	Meteor Run • UMI • VIC
22		Crossfire • Sierra On-Line • AP, AT, IBM
23		Kosmic Kamikaze • UMI • VIC
24	16	Apple Panic • Broderbund • AP, AT
25	27	Decathlon • Microsoft • AP
26	25	Allen Blitz • UMI • VIC
27	20	Amok • UMI • VIC
28	8	Zork 1 • Infocom • AP, IBM, CP/M
29		Call To Arms • Sirius • IBM
30	30	Crush, Crumble & Chomp • Epyx • AP, AT, VIC

EDUCATION

1	1	Mastertype • Lightning • AP, AT, VIC, IBM
2	3	Typing Tutor II • Microsoft • AP
3	7	Bumble Plot • TLC • AP
4	4	Compu-Read • EDU Ware • AP, AT
5	8	Type Attack • Sirius • AP, IBM
6	2	Rockys Boots • TLC • AP, AT
7	9	Speed Read Plus • OSS • AP, AT
8	6	Mit Logo • Krell • AP
9	10	The New Step By Step • Program Design • AP
10		Bumble Games • TLC • AP

THIS MONTH
LAST MONTH

BUSINESS

1	1	The Home Accountant • Continental • AP, IBM
2	2	Visicalc • Visicorp • AP, COM, AT, IBM
3	3	PFS:File • Software Pub • AP, IBM
4	4	Zardax • Computer Solutions • AP, IBM
5	7	Wordstar • Micropro • AP, CP/M, IBM
6	19	Visitrend/Plot • Visicorp • AP, IBM
7	5	PFS:Report • Software Pub • AP, IBM
8	6	Screenwriter • Sierra On-Line • AP
9	12	Visifile • Visicorp • AP, IBM
10		Bus Forecast Model • Visicorp • AP, IBM
11	23	Visischedule • Visicorp • AP, IBM
12	8	Cardbox • Caxton • AP, IBM, CP/M
13	17	1st Class Mail • Continental • AP, IBM
14	16	Executive Briefing • Lotus • AP
15		Visidex • Visicorp • AP, IBM
16	11	PFS:Graph • Software Pub • AP, IBM
17	20	Versaform • Applied Soft • AP, IBM
18		D Base II • Ashton Tate • CP/M, IBM, AP
19	25	Mallmerge • Micropro • AP, CP/M, IBM
20		Visiterm • Visicorp • AP
21	21	Vicalc • UMI • VIC
22		Bank St. Writer • Broderbund • AP
23	22	Time Manager • Microsoft • AP, IBM
24	27	The General Manager II • Sierra On-Line • AP
25	9	D.B. Master • Stoneware • AP
26	29	Scratch Pad • Supersoft • IBM, CP/M
27		File Manager • Synapse • AP
28	30	Infostar • Micropro • AP, CP/M, IBM
29		Apple/IBM Connection • Apple
30	26	Visiplot • Visicorp • AP

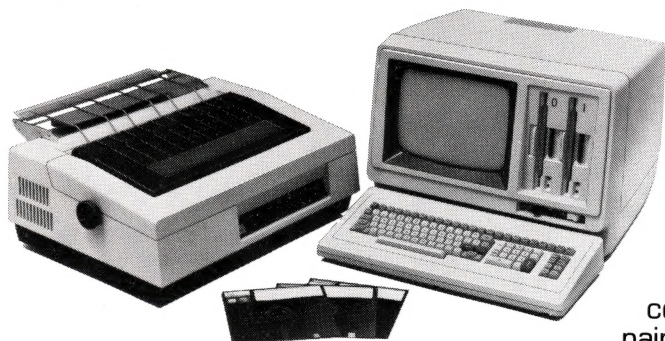
HARDWARE & ACCESSORIES

1	4	Joystick • TG Products • AP, IBM
2	3	Vision 80 • Zofarry • AP
3		Printmaster • Digitek • AP
4		RS 232 Serial Board • Digitek • AP
5		Expansion Chasis • Data 20 • VIC
6	2	Game Paddles • TG Products • AP
7	10	5 MB Hard Disk • Davong • AP, IBM
8		192 K Ramboard • Davong • IBM
9	1	16K Ramcard • Davong • AP
10	7	Le Stick • Datamost • AP, AT, VIC

Month of April

A monthly list of the top-selling packages for micro users compiled from the sales of Imagineering.

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